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ON THE IMPROVEMENT OF HUMAN LONGEVITY DURING THE NINETEENTH CENTURY.

BY

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In any attempt to consider the subject of the increase of human longevity in the United Kingdom during the nineteenth century, the first fact that strikes us is the remarkable character of the period under review. It is one of unique and unprecedented progress. The surest way of realizing this in its bearing on our present inquiry will be to glance at the growth of population, as shown by the census returns. For that purpose I append the following brief table. The population of Ireland was not included in the census of 1801; but for that year there I have taken, as near enough for the present purpose, the mean between the results of 1811 and those of an enumeration in the year 1792, given, on the authority of Thomas Newenham, in the Encyclopædia Britannica, vol. xiii., page 237. In a parallel column are shown, for a reason which will be apparent later, the similar figures for England and Wales only.

Year	Population of United Kingdom	Population of England and Wales*
1801	15,955,687	8,872,980
1811	18,547,720	10,163,676
1821	22,566,755	11,978,875
1831	24,322,332	13,894,574
1841	27,019,558	15,911,757
1851	27,452,262	17,914,768
1861	29,048,640	20,060,925
1871	31,672,678	22,704,108
1881	34,869,851	25,974,439
1891	37,732,292	29,002,525
1901	41,454,621	32,526,075

We thus see what an enormous increase in the material which forms the basis of our investigation has taken place during the period over which it is to extend.

The next outstanding feature to be noticed, as affecting our inquiry, is that the story of the statistical methods adopted for making such researches possible is, like so many others of the century, one of progress. This, while gratifying from one point of view, is from another, as regards the work now in hand, distinctly embarrassing; for it has been progress from processes so crude and rudimentary as to leave us, for a considerable period at the opening of the century, practically without any materials at all. It was not until the census of 1821, as Dr. Farr tells us ("Vital Statistics," page 7), that any attempt at recording ages was made; and as he proceeds to explain that it was "left optional, both to the census officers and to the parties themselves, how far the investiga-

* These figures are taken from "Haydn's Dictionary of Dates." On comparing them with Mr. Ryan's in his paper on "Census Reform" J. I. A., Vol. XXX.), I find some slight differences—and doubtless his are right; but the variations are immaterial for the present purpose, so I leave them as they stand.

tion should be pursued," we are not surprised to learn that the result "proved, to a considerable extent, deficient and unsatisfactory." At the next census, in 1831, inquiry as to age was abandoned, except in so far as to attempt to distinguish between "males above and under twenty."

It is of greater importance for our present purpose to note the further fact that no national system of registration of births, deaths, and marriages, existed until the year 1836. That system, when first introduced, was naturally far from perfect; and he would be a bold man who should say that it had attained such an ideal even now; but its history has again been one of progress, toward greater exactitude, comprehensiveness, and utility.

I do not think it would be of any practical value for our purpose to try to deal with, or to imitate, in the absence of general and publicly recorded registration, the attempts that were made from time to time, on the strength of isolated records, to estimate the progress of human longevity in England during the earlier portion of the nineteenth century. We get an example of such efforts in Francis Corbaux's work, "On the Natural and Mathematical Laws Concerning Population, Vitality, and Mortality," published in 1833. There, after the expenditure of considerable labor in a comparative study of the Carlisle and Northampton tables and some observations by Mr. Rickman of the county of Essex from 1812 to 1830, we find the author unable to make a more precise statement than that "a greater or less increase of the measured vitality in England, within the last half century, appears to be upon the whole unquestionable." He has also to comment on "the wretched system under which the records of births and deaths are kept in this country," and to say that "we are lamentably deficient in this respect, from the carelessness with which such matters are legislated upon, and from the unjustifiable neglects tolerated by established custom in the records of life and of death; hence the numerous fallacies and contradictions with which our periodic returns of population are replete, as also the clumsy averages which, in despair, and from mercantile habit, we are satisfied in admitting."

In these circumstances it seems to me futile to dwell longer upon the pre-registration period, by which I mean the years prior to the Registration Act of 1836. Since then we have had a system in force for England and Wales, which, in spite of many defects and possibilities of inaccuracy, has been an immense advance upon any earlier arrangement, and has been continually improving. I propose then to take as the basis of these brief comments on the subject before us, the summarized returns given in the Registrar-General's Reports (England and Wales), for 1875 and 1900. The defects of accuracy inherent in the system are well known, and it does not seem to me that they will substantially vitiate a comparative statement, extending over so long a period and dealing with such large figures. England and Wales are taken instead of the entire United Kingdom, because it is for them only that the facts throughout the whole period are fully available. Their experience, also, as will be seen by reference to the table of census returns already given, where it appears side by side with that of the United Kingdom, is the most important and progressive section of the whole, and bears such a relation thereto that conclusions arrived at from an examination of its character may be taken as substantially correct for the United Kingdom generally.

Without further preface, therefore, I append the table. I have given quinquennial figures up to 1875, and the results for each year thereafter.

Year	Males.—Age. 0-4	5-9	10-14	15-24	25-34	35-44	45-54	55-64	65-74	75-84	85-94	95 and over	all ages	Females.—Age. 0-4	5-9	10-14	15-24	25-34	35-44	45-54	55-64	65-74	75-84	85-94	95 and over	all ages	Year
1838	70	9	5	9	11	14	19	34	71	148	299	457	23	60	9	5	8	10	13	17	30	59	135	266	371	22	...1838
1840	75	11	5	8	10	13	18	31	67	145	303	448	24	64	11	6	9	10	13	16	29	59	136	284	426	22	...1840
1845	67	8	5	8	9	12	17	30	64	144	301	463	22	57	8	5	8	10	12	15	26	59	129	275	405	20	...1845
1850	67	8	5	7	9	12	17	30	63	140	285	381	21	57	8	5	8	10	12	15	26	57	126	259	427	20	...1850
1855	72	8	5	8	10	13	18	33	71	163	344	472	23	62	8	5	8	10	12	15	29	61	148	315	443	22	...1855
1860	68	7	4	7	9	13	17	31	70	152	311	437	22	58	7	4	8	9	12	15	29	56	137	297	397	20	...1860
1865	75	8	5	8	11	14	21	35	68	152	321	463	25	65	8	5	8	10	13	16	29	60	139	287	496	22	...1865
1870	75	9	5	7	10	14	20	34	70	152	315	418	24	64	8	5	7	10	12	16	29	61	140	283	415	22	...1870
1875	72	7	4	7	10	15	21	38	74	162	342	504	24	62	6	4	7	9	12	17	31	66	147	308	495	21	...1875
											85 and over													85 and over		
1876	68	6	4	6	9	14	20	34	67	146	303		22	57	6	4	6	8	12	15	28	58	129	287		20	...1876
1877	64	6	4	6	9	14	20	35	68	146	325		22	54	6	4	6	8	11	15	28	59	129	292		19	...1877
1878	71	7	4	6	9	14	20	35	70	155	354		23	61	6	4	6	8	11	15	29	62	140	313		20	...1878
1879	63	6	3	6	9	13	20	37	74	169	366		22	53	6	3	5	8	11	16	31	67	150	329		20	...1879
1880	69	6	3	5	8	13	19	34	68	146	311		22	59	6	3	5	8	11	15	28	58	129	275		19	...1880
1881	57	6	3	5	8	13	19	34	68	145	293		20	48	6	3	5	8	11	15	28	58	126	264		18	...1881
1882	63	6	3	5	8	13	19	34	66	139	287		21	54	6	3	5	8	11	15	28	57	124	256		19	...1882
1883	61	6	3	5	8	13	20	35	70	149	302		21	51	6	3	5	8	11	16	29	60	134	277		19	...1883
1884	65	6	3	5	8	13	19	34	68	142	290		21	55	6	3	5	8	11	15	28	58	127	247		19	...1884
1885	61	5	3	5	8	13	19	34	71	152	316		20	51	5	3	5	8	11	15	29	62	133	283		18	...1885
1886	65	5	3	5	8	12	19	35	73	153	339		21	54	5	3	5	7	10	15	29	63	137	302		18	...1886
1887	63	5	3	5	7	12	19	35	72	149	310		20	53	5	3	5	7	10	15	29	62	132	272		18	...1887
1888	58	5	3	5	7	12	19	34	72	144	305		19	48	5	3	5	7	10	15	28	60	130	270		17	...1888
1889	62	5	3	5	7	11	18	33	69	139	299		19	52	5	3	4	7	10	14	27	59	127	260		17	...1889
1890	63	5	3	5	8	13	22	39	75	153	317		21	53	5	3	5	7	11	16	31	64	137	277		18	...1890
1891	64	5	3	5	8	13	22	41	81	168	327		22	54	5	3	5	7	11	17	33	71	148	301		19	...1891
1892	62	5	3	5	7	12	20	37	75	155	305		20	52	5	3	4	7	10	16	31	66	142	274		18	...1892
1893	65	5	3	5	7	13	20	36	71	143	272		20	54	5	3	5	7	11	15	29	62	130	249		18	...1893
1894	55	4	2	4	7	11	18	32	62	128	242		18	46	4	3	4	6	9	14	25	53	115	218		16	...1894
1895	61	4	2	4	7	11	19	36	70	155	304		20	53	4	3	4	6	10	15	30	62	144	274		17	...1895
1896	59	4	2	4	6	11	18	32	62	129	250		18	50	4	2	4	6	9	14	26	53	117	232		16	...1896
1897	60	4	2	4	7	11	18	34	64	143	270		19	50	4	2	4	6	9	14	27	55	125	250		16	...1897
1898	61	4	2	4	7	11	18	34	64	142	280		19	51	4	2	4	6	9	14	27	57	130	257		16	...1898
1899	60	4	2	4	7	12	20	37	70	152	299		19	50	4	2	4	6	10	15	30	61	142	270		17	...1899
1900	58	4	2	4	7	12	21	39	71	156	301		19	48	4	2	4	6	10	16	31	62	143	271		17	...1900

There is a slight difference, in the grouping of the tables, between the Reports of 1875 and 1900. In the former, the age-group 15 to 24 is given, while in the latter this is split into two quinquennial sections. I have synthesized these into decennial ratios in the above reprint, by taking the mean for each year—a method near enough for practical purposes. In the 1900 table, on the other hand, all ages from 85 upward are grouped, instead of showing as in the former report a decennial result from 85 to 94 and a general grouping thereafter. I have not attempted any synthesis here, as for several reasons, and notably on account of the probable unreliability of the data, this is the least important section of the statistics before us. The only other explanatory note I need add is that whereas all the Registrar-General's ratios are given to one place of decimals, I have omitted this as an unnecessary refinement in so general a comparison as is now being made, and have given the nearest integer in each case.

We are now in a position to examine the figures, and see what is their general bearing. The first thing we notice is, looking at the two columns headed "all ages," that there is a distinct decrease in the rate of mortality as the century progresses; a decrease, on the whole, so steady and symmetrical that it may fairly be looked upon as exhibiting a settled and permanent tendency. The improvement is slightly more marked in female than in male mortality, but it is evident and indubitable in both. The next feature to be observed (and this seems to me to be the really outstanding one of the whole table), is that the weight of the improvement falls on the early years of life. Infantile mortality (years 0 to 4) shows, on the male side, a general but not a very marked decrease. It fluctuates considerably. On the female side the decrease is more consistent and regular. It is, however, when we come, in the case of each sex, to the two following quinquennial periods—and the succeeding decennial ones up to the age of thirty-four, that we see an improvement so steady, unbroken, and symmetrical that it cannot be regarded as other than the result of law. The same may be said of female mortality for a decade further, and, with rather more hesitation and reserve, of the male also. After this, however, the spell is broken. We come to periods for which the ratios, male and female, keep, on the whole, throughout the table, at about the same level; and from these in turn we pass, at the later epochs of life, to records which tell a story of retrogression rather than of advance in vitality.

I have felt that it would be desirable, if possible, to throw the figures into a form more directly bearing upon our subject, and with this object I have attempted to obtain, for three equidistant years throughout the period, an average age at death. For this purpose I have had recourse to the tables in which the Registrar-General records the actual number of deaths registered at each age from 0 (under one year) to 4, and thereafter in quinquennial and decennial groups (quinquennial to age 24 and decennial thereafter, all lives of 85 and over being grouped together). The years I have selected for the purpose are 1840, 1870, and 1900. In order to arrive at any definite result from the imperfect data at command, it has been necessary to make some assumptions. I have assumed, therefore, that deaths are evenly distributed throughout the year, that the deaths in each year of a quinquennium or decennium are uniform in number, and that from 85 onward they are equally distributed over fifteen years. I do not attempt to defend the accuracy of these assumptions, or to deny that they are very rough and arbitrary ones. Seeing, however, that an elaborate graduation was neither very prac-

ticable from the nature of the data, nor possible in the time at my disposal, and having regard also to the substantial inaccuracy necessarily inherent in the figures available, it seemed to me that if the same processes were applied and the same assumptions made throughout, the value of the results for *comparative* purposes would not be seriously impaired by the defects of the assumptions themselves.

The results are as follows:

Year	Males		Females	
	No. of deaths registered	Average age at death	No. of deaths registered	Average age at death
1840	182,421	27.15	177,266	29.38
1870	265,586	28.35	249,743	30.88
1900	303,823	33.63	284,007	36.90

We see here the substantial improvement in human longevity which the century shows, and also how strikingly it belongs to the last thirty years of that century, facts which have already been exhibited in another form by the table of ratios.

A further step, however, is necessary, to show the true momentum and distribution of the change which has taken place, translating into this mode of presentment that other feature of the previous table, the gain at the younger ages. For this purpose I have split the above process into sections, thus:

Males.—Average age at death

Year	All ages	Excluding ages 0 to 4	Excluding ages 0 to 24	Excluding ages 0 to 54
1840	27.15	46.46	57.97	72.09
1870	28.35	48.79	57.86	70.98
1900	33.63	53.17	58.79	70.41

Females.—Average age at death

Year	All ages	Excluding ages 0 to 4	Excluding ages 0 to 24	Excluding ages 0 to 54
1840	29.38	46.77	58.45	73.03
1870	30.88	49.86	59.09	72.24
1900	36.90	55.21	61.02	71.92

This shows us again, and in a form more immediately applicable to our present inquiry than that of the ratio table, where the advance has been made. The exclusion of the infantile quinquennium does not appreciably affect the advance of 1900 beyond 1870, which the result for "all ages" shows; but the exclusion of ages under twenty-five reduces it, for male lives, to less than one year, and for female lives to less than two, while the omission of thirty years more leaves us in each case with a diminution instead of an increase in the average longevity.

It is now necessary, leaving for the present these general population results, to consider the various scientific investigations into human longevity which have been made, under actuarial auspices, in our country during the nineteenth century. I confess, however, that I have had considerable hesitation about including these at all, in view of the very small number of facts which, at the best, they bring under observation, when compared with the magnitude of the general mass with which we have to deal. In that, for instance, which is by far the largest of them all—the investigation into the mortality of assured life just completed by the British Offices, we have, in the "with-profit" section, the experience of 551,838 lives and 140,889 deaths, while the statistics with which we

have hitherto been dealing cover more than sixty years, in no one of which do the deaths, of either sex, fall below 165,000. When we further remember the system upon which these investigations are based, the essence of which is to disregard the chronological element, and place together all lives of the same age at entry, irrespective of the date of their birth, it becomes very doubtful whether real light will be thrown upon our present subject, or confusion introduced, by the consideration of results arrived at by methods so radically different from those of the public statistician. Having regard, however, to the fact that both in the case of assured lives and annuitants, at least two separate investigations of capital importance have taken place during the century, and bearing in mind also the very great superiority, in scientific accuracy of data, which such investigations have as compared with registration returns, it seems advisable to exhibit briefly their comparative results. In these cases the function selected for comparison as the most accurate measure of the longevity ascertained, is the "expectation of life" ("aggregate," not "select" lives). Taking assured life first, then, we compare the results of the "H^M" investigation, ending in 1863, and the "O^M" investigation, continued down to 1893. The investigations into female mortality we disregard, the body of experience available being too limited to have any practical value in such an inquiry as this.

	No. of lives observed	No. of deaths recorded	Expectation of life.—Age 20	30	40	50	60	70	80	90
H^m ..	130,243	20,521	42.1	34.7	27.4	20.3	13.9	8.5	4.7	2.4
O^m ..	551,838	140,889	43.7	35.6	27.9	20.6	14.1	8.7	4.8	2.4

For annuities we compare the tables of Mr. Finlaison, based on the government annuitant's experience from 1808 to 1875, with those derived from the experience of British Life Offices down to 1893.

Male

	Lives observed	Deaths recorded	Expectation of life.—Age 50	60	70	80	90
Government	10,929	8,607	20.5	14.6	8.9	5.1	2.7
British Offices....	6,728	3,503	21.0	14.9	9.2	5.2	2.9

Female

	Lives observed	Deaths recorded	Expectation of life.—Age 50	60	70	80	90
Government	19,859	14,391	23.3	16.3	10.0	5.5	2.7
British Offices....	18,951	9,107	24.2	17.0	10.5	5.6	3.0

These sets of figures are interesting, if only from the fact that they contradict, at the higher ages, the testimony of the general population results, and show a uniform, if minute, improvement throughout. They seem to indicate that certain small and severely selected sections of the community (for the medical test in the case of the life assurer and the automatic self selection of the annuitant are cognate forces), drawn too, it must be remembered, chiefly from the prosperous middle class, hold their own throughout life, and show, from youth to old age, a fractionally improving longevity.

After all, however, in the bulk of facts before us, such figures as these count for little either way, and we come back to the larger results which have been exhibited, trying in a few final words to sum up and comment on their general significance. This is far from easy. The

enormous social and political transformation which our country has undergone during the century that has just closed is a thing unparalleled in history. Every element of that wonderful and complex development has in some way entered into, and left its mark upon, so outstanding a feature of national life as the longevity of the people. To attempt to trace the effect of these divers forces would be far beyond my power. One can only glance at a few of the most obvious tendencies. The growth of the factory system, the revolutionizing power of railways, the development of our mineral resources, drew the people to the towns from the villages. National prosperity increased population by leaps and bounds. At first this prosperity was not a little heartless. The struggle for life took little account of the weak. Then came a reaction toward humanity and philanthropy. We have the growth of our great hospitals—the various organizations which care for the poor and the suffering—and especially for the children. Contemporarily with this we have also the great advance of science; its increased ability to cope with disease; its triumphs in surgery; its development of sanitation. If we carefully consider these various "streams of tendency" I think we shall not find it difficult to understand how the added length of years which they have combined to bring have come as a gift to childhood and youth rather than to old or middle age. A democratic society, alive to the common good, and disposed to equip the State with power to secure it, will naturally benefit its members most in the early and defenseless years of their lives. The child and the youth, healthily housed, guarded more efficiently from infectious disease, trained more carefully both in body and mind, with schools and playgrounds placed at their service by the State, and free access to the best medical and surgical skill in case of need; these make acquaintance with our modern social conditions at their most beneficent point, and reap the richest good from them. In the after years other conditions of modern life must be faced which are more difficult; its intenser strain, its keener competition, its higher pressure; even special forms of fatal disease which it seems to foster. The Registrar-General's report for 1900 contains two interesting tables which show, for the previous decade, a distinct decline in the mortality from phthisis and an increase in that from cancer. It is well known that the former trouble is especially the enemy of life's earlier, and the latter of its later years. The change is perhaps typical of much else.

There is surely, however, a more hopeful note upon which we may bring these fragmentary speculations to an end. The old life, which is failing to keep pace in vitality with the younger, is the survival of an earlier time. Let us not forget that the youth which has so improved the length of its days during the last quarter of the century we have left behind us, has yet to show how it can bear the burden and the heat of the later years. Let us hope that the order of things which has made it strong to survive the perils of its adolescence will so equip and fortify it for the tasks which lie before its prime, that the statistical investigator of the twentieth century, when its course shall have been run, will have to present the record of a vitality which has preserved its vigor from youth to age, faced and conquered the complex problems of modern civilization, endured the stress and strain of time, and laid firm and strong the lines of national progress.

RÉSUMÉ.

LA PROLONGATION DE LA VIE DANS LE DIX-NEUVIÈME SIÈCLE.

Par Samuel Geo. Warner.

La première considération est la période de progrès, d'un caractère unique, que le dix-neuvième siècle a présenté dans notre pays. Ce progrès est illustré par une table de recensements, donnant dans des colonnes parallèles les populations (1) du Royaume Uni et (2) de l'Angleterre et du Pays de Galles pour chaque recensement depuis 1801. Les méthodes de recherches par statistiques font aussi des progrès. Les premiers recensements ne tenaient pas compte des âges. Ce n'est que depuis 1836 que l'enregistrement des naissances et des décès est devenu un système national. Il n'y a pas utilité pratique à essayer de traiter dans cet article de la période précédant cet enregistrement. Une tentative dans ce sens serait futile, faute de matériaux. F. Corbaux l'admet dans son livre sur la population, publié en 1833. On se propose dans cet article, de ne considérer que les Rapports du Greffier Général pour l'Angleterre et le Pays de Galles, parcequ'ils sont typiques du Royaume Uni et existent sous forme plus pleine et plus complète que ceux de toute autre section. On donne une tabelle du taux de la mortalité par mille en Angleterre et le Pays de Galles pour les années 1838, 1840, 1845, 1850, 1855, 1860, 1865, 1870, 1875 et de cinq en cinq ans jusqu'en 1900. Les âges sont groupés comme suit: de 0/4, 5/9, 10/14, 15/24, 25/34, 35/44, 45/54, 55/64, 65/74, 75/84, 85 et au-dessus. La mortalité pour les mâles et les femelles se voit séparément. Il y a aussi une colonne pour chaque sexe pour « tous les âges.» Le résultat général montre une amélioration constante qui est surtout marquée aux jeunes âges. Cette amélioration ressort d'une autre manière en essayant d'obtenir « un âge moyen de décès » pour chaque sexe pendant trois années typiques: 1840, 1870 et 1900. Dans la table ainsi préparée, l'année 1900 montre un progrès d'environ 5 ans pour les mâles et de 6 ans pour les femelles sur l'année 1870. On analyse encore cette amélioration en la partageant en sections, et on découvre que si on omet les âges au dessous de 25, presque tout le progrès disparaît et que si on omet les âges au dessous de 55, l'année 1900 se trouve remise au dessous de l'année 1870. L'auteur réfère ensuite aux recherches des actuaires sur la mortalité durant le siècle — bien que ces recherches soient si limitées, quant au nombre de faits observés et diffèrent si radicalement par leur méthode, des statistiques de la population, que l'auteur ne les comprend pas sans hésitation dans son article. On compare: les expectatives H m & O m de vie à des intervalles décennaux de 20 à 90 — l'Expérience des Annuitaires du Gouvernement de 1808 à 1875, et l'expérience d'annuité des « Life Offices » anglais jusqu'à 1893 — les expectatives de vie à intervalles décennaux de 50 à 90. Tous ces chiffres montrent une légère augmentation dans les dernières recherches comparées aux précédentes — augmentation due probablement à ce que ce sont des classes restreintes et choisies.

L'article se termine par une revue générale de quelques particularités marquantes du développement social durant le siècle qui peuvent affecter la longévité. On fait remarquer, d'une manière générale, que la tendance d'une société démocratique, avec une surveillance gouvernementale du bien public, sera d'améliorer et de faciliter les conditions de vie, surtout pour la jeunesse, qui, vraisemblablement, bénéficiera le plus de ces changements. On espère qu'elle pourra, en conséquence de cette tendance qui s'est déjà réfléchie favorablement sur la vitalité, faire face aux peines et aux luttes de la vie avec une égale vigueur et conserver jusqu'à la fin l'avantage gagné dans les premières années.

KURZE NOTIZ.

ÜBER DIE VERLÄNGERUNG DER LEBENSDAUER WÄHREND DES NEUNZEHNTEN JAHRHUNDERTS.

Von Samuel Geo. Warner.

Erste Betrachtung, Periode des Fortschrittes, einzig in ihrer Art während des 19. Jahrhunderts in unserem Lande. Dies ist dargestellt durch eine Volks-

zählungstabelle, welche in parallelen Rubriken die Bevölkerung des Vereinigten Königreiches (1) und England und Wales (2) für jeden Census seit 1801 anführt. Die Methoden der statistischen Nachforschungen ebenfalls fortschreitend. Die frühzeitigen Zählungen enthalten keine Alters-Angaben. Die Registrirung von Geburten und Todesfällen ein National-System erst seit 1836. Es hat keinen praktischen Wert, zu versuchen, sich in diesem Bericht mit der vor dieser Zeit liegenden Periode zu befassen. Versuche, dies zu thun, nutzlos wegen Mangel an Material. Das wird durch F. Corbaux in seinem Buche über Bevölkerung — ausgegeben 1833 — eingeräumt. Es wird in dem Berichte vorgeschlagen, sich nur „Registrar General's Reports" für England und Wales allein zu bedienen — weil sie jenen des Vereinigten Königreiches vorbildlich sind — und in einer volleren und completeren Form existieren, als die Berichte irgend eines anderen Bezirkes desselben. Eine Tabelle zeigt ferner die jährliche Sterblichkeitsrate per 1000 in England und Wales für die Jahre 1838, 1840, 1845, 1850, 1855, 1860, 1865, 1870 und 1875, sowie jedes darauf folgende Jahr bis 1900 an. Die Alter sind gruppirt wie folgt: 0/4, 5/9, 10/14, 15/24, 25/34, 35/44, 45/54, 55/64, 65/74, 75/84, 85 und darüber. Männliche und weibliche Sterblichkeitsfälle sind separat angezeigt. Ausserdem noch eine Colonne jeden Geschlechtes für „alle Alter." Das General-Resultat zeigt eine fortwährende Verbesserung. Dies ist besonders in den jungen Jahren bemerkbar. Dieses Resultat wurde auch auf eine andere Art erzielt, und zwar durch den Versuch, ein „Durchschnitts-Alter beim Tode" für jedes Geschlecht während dreier typischer Jahre zu erzielen: 1840, 1870 und 1900. In dieser Tabelle weist das Jahr 1900 einen Fortschritt von circa 5 Jahren (männlichen Geschlechtes) und 6 Jahren (weiblichen Geschlechtes) gegen das Jahr 1870 auf. Vorstehendes ist durch Zerlegung in Abteilungen noch weiter zergliedert worden, und zeigt, dass, wenn wir die Alter unter 25 Jahren auslassen, der Fortschritt fast gänzlich verschwindet, wenn wir die Alter unter 55 Jahren auslassen, dann 1900 unter 1870 zu stehen kommt. Es wird ferner auf die statistischen Untersuchungen der Sterblichkeit während des Jahrhunderts Bezug genommen, obwohl dieselben an Beobachtungs-Thatsachen so arm, und im Vergleiche zu den Bevölkerungs-Statistiken in einer so gänzlich verschiedenen Art gehalten sind, dass sie nicht ohne Zaudern in diesem Berichte aufgenommen werden konnten. Die H m & O m mutmaassliche Lebensdauer ist in Zwischenräumen von Jahrzehnten von 20–90 verglichen; desgleichen die Regierungs-Annuitäts-Experimente von 1808 bis 1875, und die Annuitäts-Experimente der „British Life Offices" bis 1893 — und die mutmaassliche Lebensdauer in Zwischenräumen von Jahrzehnten, von 50 bis 90. Alle diese Zahlen zeigen eine geringe Zunahme der späteren Nachforschungen im Vergleiche zu den früheren an, was wahrscheinlich dem Umstande zuzuschreiben ist, dass sie in kleinen und gewählten Classen vorgenommen wurden.

Der Bericht schliesst mit einem allgemeinen Ueberblick einiger während des Jahrhunderts zu erwartenden Arten der socialen Entwickelung, welche wahrscheinlich die Lebensdauer beeinflussen dürften. Es wird im Allgemeinen bemerkt, dass die Tendenz einer demokratischen Gesellschaft unter einer für das Land vorteilhaften, staatlichen Oberaufsicht die sein wird, die Lebensverhältnisse zu verbessern und zu erleichtern, dies speciell für die Jugend, welche, wie zu erwarten ist, aus all den Aenderungen den grössten Vorteil ziehen wird. Es wird auch noch der Hoffnung Ausdruck gegeben, dass sie zufolge dieser Tendenz, welche sich jetzt schon sehr günstig an ihrer Lebensfähigkeit kund thut, imstande sein wird, den Sorgen und Mühsalen des späteren Lebens mit gleicher Kraft Stand zu halten, und alle daraus erwachsenden Vorteile dauernd zu bewahren.

ON THE IMPROVEMENT IN LONGEVITY DURING THE NINETEENTH CENTURY IN THE NETHERLANDS.

BY

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In order to examine the changes in longevity during the nineteenth century, we thought best to give a comparative review of the principal mortality tables which were published in the Netherlands within that period. There exist, indeed, several other data concerning vital statistics, and among them very interesting ones as, for instance, the number of deaths per thousand per annum of all ages together, etc.; these, however, seemed to us of less importance for the subject we had to treat.

The best image of the law of mortality is furnished by the probability of death, and next to this by the so called mortality tables and the tables of the complete expectation of life.

As we had to study these different data, it was impossible to go back to the beginning of the nineteenth century, and we had to restrain ourselves to the period for which tables of mortality have been constructed.

We also limited our investigation to the mortality among the whole population, not only in order to avoid a too large extension, but also because we had to expect in this way the best chance for relatively insignificant deviations. Therefore we considered neither the tables for different cities or provinces, nor those deduced from the experience of life insurance companies. The results from such partial tables seemed of little value for our purpose.

We made, however, one exception, and took into consideration the tables constructed by Prof. R. Lobatto from the data for Amsterdam in the period of 1816-25 and published in his book entitled "Beschouwing van den aard, de voordeelen en de inrigting der Maatschappijen van Levensverzekering." We did so, because these tables are the eldest of the nineteenth century and have not only a historical, but also a practical importance, as being the first domestic mortality tables of the century which have served as a base for the premiums of live insurance companies.

Lastly, we have to mention that we only considered the tables for the sexes separately, in order to show clearly the very characteristic difference between the mortality of both, and the changes which occurred in this difference itself during the period. The existing tables for both sexes together were, therefore, left out of consideration.

The general mortality tables are based on the official census which took place every ten years from 1829 to 1899, and the enumerations of the deaths in the meantime.

The tables, 1840-51, were published in "Bevolkingstafelen voor het

koningrijk der Nederlanden, 1859"; the tables for 1850-59 in "Statistisch Jaarboek voor het koningrijk der Nederlanden, 1867"; these two were constructed by M. M. von Baumhauer.

The tables for 1860-69, elaborated under the direction of Mr. G. de Bosch Kemper, appeared in "Bijdragen tot de Algemeene Statistiek van Nederland" together with a reprint of the tables of Baumhauer.

The tables from 1870-79, 1880-89, and 1890-99, are due to Prof. A. J. van Pesch. The first were published in "Bijdragen van het Statistisch Instituut No. 3, 1885," the second in "Bijdragen tot de Statistiek van Nederland, V., 1897." The third have not yet been printed, but were procured to us with great kindness in manuscript by Prof. van Pesch himself, in order to make use of them for the present study. We owe him therefore our best thanks.

We reproduce completely in the Tables I.-III., the probability of dying, the complete expectation of life and the number living, as given by the seven different tables.

We also constructed in the Tables IV. and V. the curves representing the complete expectation of life at each age from 0 to 90, and in the Tables VI.-VII., the curves representing the number living at each age up to 90 out of 100,000 new-born children, the horizontal coördinates representing the age, the vertical ones respectively, the expectation or the number living. The table to which each column or curve corresponds, is indicated by the period from which it was constructed. Our original project to give also comparative curves of the probability of dying had to be given up, as it could only be executed on a scale too large to be reproduced.

We cannot abstain from remarking that the probabilities of dying for the period 1840-51 show clearly not to have been deduced from observations for each age separately. Probabilities have been constructed for groups of age, from these were deduced the numbers living at each age, and from these again the probability of dying. Consequently, these figures have less value than the numbers of living and the expectations of life, which indeed show a more regular course.

It was happy, therefore, that afterwards a better method was applied, and it was again Professor van Pesch who contributed very much to that effect.

A very important improvement was, that at the last four censuses, the arrangement took place not only after the age, but also after the year of birth, and that at each death the year of birth was noted in the records of the civil state.

For the construction of a mortality table Professor van Pesch obtained the number under observation at each age and in each year, by starting from a given census, making use of the observed deaths in the next ten yearly period, and thus determining the number living to be found at the following census. The comparison with the results of this last, furnished him the means to control the influence of emigration and immigration for each age.

After these historical remarks, we wish to call the attention to some points resulting from the tables and the curves, with exception, however, of the highest ages, at which the figures have little value, as being based on an insufficient number of observations.

It appears, firstly, that during the whole century the mortality of males (at least for the entire population) remained greater than that of the females; that, however, the difference between the probabilities of dying is by far the greatest in the eldest table; and though it be true that

this is based on data from Amsterdam only and so less comparable with following tables, yet it may be seen that the difference decreases generally in each following period. This may, perhaps, be ascribed to well-defined causes, on which, however, we have now no opportunity to dwell.

An exception exists only for the ages in average from twenty-six or twenty-eight up to forty-one or forty-three, during which the mortality of women is greater than that of men. This cannot be ascribed to chance, as it appears in all whole population tables and in average for the same ages, which, therefore, might be called the critical ages for women. The differences, however, are not large, and do not exceed 2½ per 1,000; consequently the expectation of life for females remains greater than that for males, also at those ages, the influence of the diminution being amply neutralized at the following ages.

Even in the exceptional period, however, the difference between the two sexes is continuously decreasing, which is partly due to the more important changes in the mortality of the males.

The curves in the Tables IV.-VII. give a clear image of the improvement of the longevity in the last century.

It is indeed remarkable, how very constantly the expectation of life is increasing. Except at the highest ages, the curves of the last sixty years in the Tables IV. and V. never intersect each other. Generally the increase is more important and regular for the males than for the females, and in both cases the least in the period from 1840-60.

Still it is worth while to note the increase of the maximum of the expectation of life. For the males it changed from 47.1 to 56.4; for females from 48.6 to 57.8, so that for both it increased with about nine years. Moreover, the age to which the maximum corresponds decreased from about five to three years, as a consequence of the better vitality of very young children.

Almost the same results may be deduced from the curves in the Tables VI. and VII. regarding the probable lifetime of new-born children. By following the horizontal coördinates at the number 50,000, it may be seen that the probable lifetime increased for males from 35 to 57, for females from 39 to 61, for both with about 22 years.

TABLE I.

PROBABILITY OF DYING.—MALES.

Age.	1816-25	1840-51	1850-59	1860-69	1870-79	1880-89	1890-99
0.....	0.2513	0.22410	0.20979	0.21160	0.22157	0.19718	0.17319
1.....	.0910	.06854	.07073	.06743	.06379	.05652	.04522
2.....	.0619	.03813	.03865	.03648	.03158	.02495	.01803
3.....	.0365	.02505	.02389	.02406	.02039	.01706	.01148
4.....	.0244	.02031	.01728	.01750	.01460	.01200	.00833
5.....	.0205	.01567	.01351	.01430	.00206	.00908	.00623
6.....	.0120	.01005	.01084	.01166	.00950	.00729	.00510
7.....	.0112	.00972	.00973	.00980	.00772	.00582	.00409
8.....	.0095	.00740	.00793	.00802	.00641	.00486	.00347
9.....	.0084	.00772	.00678	.00682	.00555	.00421	.00311
10.....	.0097	.00578	.00532	.00619	.00494	.00362	.00278
11.....	.0058	.00568	.00520	.00553	.00445	.00320	.00259
12.....	.0037	.00486	.00541	.00502	.00412	.00307	.00258
13.....	.0028	.00486	.00403	.00449	.00401	.00310	.00264
14.....	.0028	.00498	.00458	.00489	.00407	.00320	.00276
15.....	.0038	.00498	.00486	.00490	.00440	.00347	.00312
16.....	.0052	.00751	.00516	.00548	.00506	.00401	.00372
17.....	.0069	.00751	.00654	.00632	.00596	.00479	.00440
18.....	.0088	.00751	.00748	.00732	.00717	.00570	.00505

TABLE I.—*Continued.*

PROBABILITY OF DYING—MALES.

Age.	1816-25	1840-51	1850-59	1860-69	1870-79	1880-89	1890-99
19.....	.0107	.00751	.00826	.00829	.00855	.00665	.00569
20.....	.0125	.01175	.00952	.01020	.00950	.00725	.00631
21.....	.0141	.01175	.01026	.01004	.00970	.00729	.00666
22.....	.0145	.01175	.01065	.00994	.00953	.00719	.00659
23.....	.0163	.01175	.00945	.00962	.00929	.00718	.00637
24.....	.0169	.01175	.00965	.00973	.00898	.00711	.00635
25.....	.0170	.01079	.01006	.00966	.00883	.00701	.00636
26.....	.0168	.01079	.01002	.00926	.00880	.00704	.00621
27.....	.0164	.01079	.01059	.00950	.00859	.00706	.00603
28.....	.0156	.01079	.01025	.00927	.00849	.00702	.00600
29.....	.0148	.01079	.00968	.00916	.00864	.00695	.00608
30.....	.0142	.01118	.01014	.00943	.00870	.00694	.00621
31.....	.0140	.01118	.01065	.00897	.00858	.00710	.00631
32.....	.0143	.01118	.01171	.00992	.00864	.00734	.00638
33.....	.0157	.01118	.01149	.01003	.00901	.00754	.00656
34.....	.0186	.01118	.01085	.00948	.00931	.00785	.00685
35.....	.0188	.01326	.01149	.01087	.00956	.00830	.00724
36.....	.0190	.01326	.01171	.01132	.00974	.00862	.00753
37.....	.0192	.01326	.01200	.01089	.00991	.00883	.00773
38.....	.0193	.01326	.01269	.01180	.01023	.00921	.00792
39.....	.0194	.01326	.01365	.01213	.01061	.00962	.00821
40.....	.0197	.01719	.01366	.01278	.01109	.00986	.00852
41.....	.0201	.01720	.01475	.01260	.01165	.01014	.00894
42.....	.0206	.01719	.01565	.01359	.01219	.01060	.00957
43.....	.0214	.01719	.01481	.01396	.01261	.01110	.01004
44.....	.0225	.01719	.01609	.01492	.01306	.01155	.01022
45.....	.0238	.01992	.01747	.01614	.01369	.01211	.01057
46.....	.0252	.01992	.01717	.01569	.01439	.01272	.01138
47.....	.0269	.01992	.01781	.01674	.01493	.01319	.01215
48.....	.0286	.01992	.01886	.01753	.01540	.01384	.01282
49.....	.0303	.01992	.01839	.01804	.01619	.01470	.01368
50.....	.0296	.02210	.02145	.01936	.01720	.01548	.01467
51.....	.0309	.02210	.02273	.01896	.01831	.01600	.01550
52.....	.0324	.02209	.02464	.02218	.01947	.01677	.01636
53.....	.0340	.02704	.02599	.02174	.02061	.01794	.01708
54.....	.0358	.02704	.03002	.02416	.02161	.01908	.01785
55.....	.0376	.02705	.02865	.02463	.02283	.02041	.01906
56.....	.0395	.03122	.02989	.02691	.02413	.02210	.02043
57.....	.0416	.03122	.03089	.02780	.02559	.02410	.02181
58.....	.0437	.03121	.03521	.03093	.02764	.02589	.02345
59.....	.0458	.03705	.03228	.03049	.03002	.02731	.02553
60.....	.0482	.03705	.03629	.03417	.03209	.02874	.02751
61.....	.0506	.03705	.03985	.03505	.03431	.03062	.02960
62.....	.0530	.04372	.03769	.03868	.03729	.03317	.03234
63.....	.0558	.04372	.04529	.04253	.04034	.03625	.03547
64.....	.0585	.04372	.04735	.04468	.04312	.03928	.03868
65.....	.0615	.05761	.05597	.04812	.04614	.04217	.04181
66.....	.0647	.05761	.05719	.05143	.04945	.04576	.04501
67.....	.0683	.07221	.06287	.05468	.05311	.04963	.04839
68.....	.0723	.07220	.06880	.05991	.05760	.05353	.05258
69.....	.0769	.07356	.06595	.06327	.06267	.05843	.05778
70.....	.0907	.07356	.07876	.07196	.06843	.06390	.06305
71.....	.0951	.09284	.08144	.07150	.07495	.06871	.06819
72.....	.0998	.09284	.08289	.08422	.08149	.07464	.07400
73.....	.1051	.11539	.09832	.08852	.08747	.08177	.08072
74.....	.1109	.11541	.09880	.09650	.09487	.08932	.08763
75.....	.1170	.12767	.10730	.10395	.1046	.09698	.09451
76.....	.1242	.12766	.11348	.11010	.1133	.1049	.1026
77.....	.1317	.15400	.13267	.11892	.1216	.1124	.1129
78.....	.1401	.15402	.15063	.12962	.1313	.1208	.1242
79.....	.1485	.16069	.13215	.13604	.1401	.1316	.1348
80.....	.1586	.16068	.17098	.16062	.1481	.1441	.1439
81.....	.1684	.21059	.19647	.15963	.1575	.1563	.1546

TABLE I.—*Continued.*

PROBABILITY OF DYING—MALES.

Age.	1816-25	1840-51	1850-59	1860-69	1870-79	1880-89	1890-99
82.....	.1799	.21061	.18233	.17410	.1739	.1682	.1681
83.....	.1900	.22610	.21473	.18872	.1916	.1800	.1802
84.....	.2004	.22616	.21944	.20834	.2075	.1915	.1918
85.....	.2107	.25886	.22465	.20326	.2190	.2030	.2066
86.....	.2196	.25885	.25720	.23654	.2315	.2162	.2228
87.....	.2251	.29855	.25468	.25531	.2569	.2281	.2382
88.....	.2235	.29863	.26693	.24645	.276	.248	.257
89.....	.2086	.26173	.23791	.26389	.286	.276	.279
90.....	.2091	.37334	.37078	.29682	.302	.31	.31
91.....	.2184	.42250	.35550	.....	.33	.36	.36
92.....	.2206	.32558	.31551	.....	.38	.41	.41
93.....	.2264	.31784	.29545	.....	.44	.46	.46
94.....	.2439	.30549	.34993	.....	.5	.53	.53
95.....	.1613	.38924	.34008	.....	.6	.6	.6
96.....	.1923	.40933	.26087	.....	.7	.7	.7
97.....	.1905	.40351	.29597	.....	.8	.8	.8
98.....	.1765	.36765	.40580	.....	.9	.9	.9
99.....	.2142	.51163	.24324	.....	1.0	1.0	1.0
100.....	.2727	1.00000	1.00000	.....	.....	.....	.....
101.....	.3750	.....	.....	.....	.....	.....	.....

PROBABILITY OF DYING.—FEMALES.

Age.	1816-25	1840-51	1850-59	1860-69	1870-79	1880-89	1890-99
0.....	0.2048	0.18604	0.18205	0.18232	0.18853	0.16535	0.14489
1.....	.0784	.06809	.06933	.06617	.06318	.05486	.04384
2.....	.0536	.03779	.03867	.03734	.03063	.02462	.01742
3.....	.0308	.02539	.02377	.02345	.01955	.01628	.01094
4.....	.0220	.02006	.01689	.01740	.01442	.01173	.00771
5.....	.0165	.01552	.01355	.01379	.01146	.00874	.00586
6.....	.0102	.01012	.01110	.01132	.00900	.00692	.00488
7.....	.0073	.01000	.00949	.00966	.00735	.00560	.00410
8.....	.0076	.00731	.00792	.00816	.00628	.00475	.00355
9.....	.0064	.00781	.00715	.00731	.00567	.00424	.00320
10.....	.0062	.00605	.00592	.00650	.00517	.00387	.00300
11.....	.0047	.00595	.00565	.00592	.00469	.00362	.00295
12.....	.0039	.00517	.00587	.00553	.00449	.00355	.00308
13.....	.0035	.00517	.00556	.00519	.00472	.00374	.00326
14.....	.0035	.00561	.00559	.00572	.00514	.00407	.00351
15.....	.0039	.00561	.00635	.00615	.00560	.00440	.00382
16.....	.0044	.00722	.00634	.00648	.00603	.00480	.00411
17.....	.0051	.00722	.00703	.00675	.00635	.00513	.00426
18.....	.0060	.00722	.00701	.00675	.00656	.00528	.00433
19.....	.0069	.00722	.00713	.00711	.00669	.00529	.00448
20.....	.0078	.00850	.00731	.00714	.00684	.00533	.00468
21.....	.0087	.00850	.00720	.00692	.00703	.00546	.00481
22.....	.0096	.00850	.00870	.00805	.00744	.00567	.00487
23.....	.0104	.00850	.00808	.00788	.00784	.00609	.00505
24.....	.0111	.00850	.00849	.00821	.00809	.00651	.00536
25.....	.0116	.00998	.00941	.00875	.00846	.00676	.00562
26.....	.0121	.00998	.00973	.00897	.00887	.00704	.00577
27.....	.0125	.00998	.01058	.00989	.00908	.00736	.00591
28.....	.0128	.00998	.01140	.01006	.00926	.00765	.00612
29.....	.0131	.00998	.01103	.01044	.00967	.00886	.00640
30.....	.0134	.01207	.01119	.01080	.01004	.00813	.00672
31.....	.0136	.01207	.01317	.01091	.01037	.00846	.00704
32.....	.0140	.01207	.01364	.01182	.01090	.00981	.00731
33.....	.0143	.01207	.01317	.01213	.01124	.00933	.00756
34.....	.0150	.01207	.01374	.01224	.01129	.00932	.00784
35.....	.0157	.01412	.01291	.01265	.01159	.00952	.00803
36.....	.0159	.01412	.01314	.01321	.01228	.00984	.00818

TABLE I.—*Continued.*

PROBABILITY OF DYING—FEMALES.

Age.	1816-25	1840-51	1850-59	1860-69	1870-79	1880-89	1890-99
37.....	.0159	.01412	.01431	.01314	.01265	.01024	.00853
38.....	.0158	.01412	.01533	.01435	.01251	.01057	.00895
39.....	.0158	.01412	.01518	.01429	.01237	.01073	.00918
40.....	.0157	.01582	.01527	.01441	.01245	.01077	.00920
41.....	.0158	.01582	.01605	.01373	.01252	.01088	.00920
42.....	.0160	.01582	.01534	.01460	.01245	.01089	.00923
43.....	.0163	.01582	.01414	.01408	.01240	.01060	.00924
44.....	.0168	.01582	.01333	.01365	.01224	.01021	.00922
45.....	.0174	.01550	.01470	.01371	.01225	.01009	.00935
46.....	.0183	.01550	.01402	.01325	.01228	.01029	.00964
47.....	.0190	.01549	.01419	.01374	.01234	.01042	.00981
48.....	.0204	.01549	.01478	.01462	.01268	.01072	.01012
49.....	.0215	.01549	.01410	.01431	.01310	.01137	.01064
50.....	.0225	.01812	.01688	.01576	.01368	.01190	.01114
51.....	.0235	.01812	.01879	.01599	.01439	.01232	.01172
52.....	.0244	.01812	.01943	.01686	.01523	.01318	.01247
53.....	.0248	.02130	.02052	.01772	.01607	.01426	.01345
54.....	.0248	.02129	.02180	.01914	.01691	.01494	.01435
55.....	.0244	.02130	.02187	.02006	.01778	.01577	.01516
56.....	.0262	.02580	.02503	.02138	.01863	.01717	.01630
57.....	.0281	.02580	.02588	.02242	.02001	.01852	.01774
58.....	.0305	.02580	.02718	.02364	.02213	.01963	.01912
59.....	.0335	.02952	.02546	.02628	.02428	.02106	.02038
60.....	.0359	.02952	.03040	.02970	.02613	.02280	.02216
61.....	.0389	.02952	.03214	.02934	.02811	.02470	.02458
62.....	.0418	.03785	.03548	.03399	.03059	.02725	.02720
63.....	.0449	.03785	.04074	.03617	.03386	.03045	.02982
64.....	.0481	.03785	.04361	.03947	.03738	.03367	.03248
65.....	.0512	.04917	.05041	.04381	.04033	.03653	.03536
66.....	.0543	.04917	.05371	.04606	.04331	.04003	.03883
67.....	.0576	.06538	.05600	.04825	.04754	.04402	.04263
68.....	.0611	.06538	.06815	.05695	.05246	.04791	.04644
69.....	.0654	.06799	.05947	.05948	.05720	.05190	.05061
70.....	.0713	.06799	.07407	.06794	.06227	.05648	.05585
71.....	.0784	.08675	.07769	.06643	.06940	.06203	.06139
72.....	.0857	.08675	.08249	.07850	.07753	.06800	.06723
73.....	.0931	.10690	.09165	.08571	.08472	.07465	.07376
74.....	.1006	.10691	.09754	.09278	.0916	.08166	.08074
75.....	.1089	.11850	.10530	.10039	.0965	.08917	.08824
76.....	.1172	.11850	.11863	.10886	.1086	.09765	.09663
77.....	.1261	.14193	.12746	.11428	.1198	.10615	.1056
78.....	.1355	.14193	.14090	.12901	.1300	.1151	.1143
79.....	.1456	.14820	.12798	.13576	.1383	.1242	.1228
80.....	.1563	.14820	.15223	.15299	.1452	.1337	.1322
81.....	.1673	.20673	.19044	.14591	.1544	.1459	.1446
82.....	.1785	.20671	.19313	.16956	.1687	.1602	.1592
83.....	.1909	.21846	.20910	.19447	.1854	.1730	.1729
84.....	.2023	.21852	.20215	.19689	.2002	.1851	.1847
85.....	.2128	.25941	.21989	.20112	.2149	.2015	.1991
86.....	.2222	.25935	.24454	.22567	.2298	.2162	.2157
87.....	.2286	.29541	.23024	.22549	.2422	.2268	.2261
88.....	.2284	.29549	.27446	.24723	.253	.246	.233
89.....	.2160	.23619	.21507	.23747	.266	.274	.249
90.....	.1990	.35452	.29743	.27614	.288	.31	.27
91.....	.1783	.42959	.33958	.....	.319	.36	.30
92.....	.2015	.29101	.34901	.....	.36	.41	.35
93.....	.2136	.27590	.25937	.....	.41	.46	.40
94.....	.2593	.31283	.31482	.....	.47	.53	.47
95.....	.2667	.33463	.28997	.....	.53	.6	.56
96.....	.2955	.33041	.25421	.....	.6	.7	.66
97.....	.3226	.36681	.41925	.....	.7	.8	.78
98.....	.3333	.37931	.24818	.....	.8	.9	.8
99.....	.4286	.45556	.24074	.....	.9	1.0	.9
100.....	.5000	1.00000	1.00000	.....	1.0	.....	1.0
101.....	.5000	.....	.....	.....	.....	.....	.....

TABLE II.

COMPLETE EXPECTATION OF LIFE.—MALES.

Age.	1816-25	1840-51	1850-59	1860-69	1870-79	1880-89	1890-99
0.....	29.32	34.94	36.44	37.2	38.4	42.5	46.2
1.....	37.99	43.89	44.99	46.1	48.2	51.8	54.8
2.....	40.75	46.08	47.37	48.4	50.5	53.8	56.4
3.....	42.40	46.89	48.26	49.2	51.1	54.2	56.4
4.....	42.99	47.08	48.43	49.4	51.2	54.1	56.1
5.....	43.05	47.05	48.27	49.3	50.9	53.8	55.5
6.....	42.94	46.79	47.92	49.0	50.5	53.3	54.9
7.....	42.45	46.26	47.44	48.6	50.0	52.7	54.1
8.....	41.93	45.71	46.91	48.0	49.4	52.0	53.4
9.....	41.32	45.05	46.27	47.4	48.7	51.2	52.5
10.....	40.67	44.39	45.59	46.7	48.0	50.4	51.7
11.....	40.06	43.65	44.83	46.0	47.2	49.6	50.8
12.....	39.30	42.89	44.06	45.3	46.4	48.8	50.0
13.....	38.44	42.10	43.30	44.5	45.6	47.9	49.1
14.....	37.54	41.30	42.47	43.7	44.8	47.1	48.2
15.....	36.65	40.51	41.66	42.9	44.0	46.2	47.5
16.....	35.79	39.71	40.87	42.1	43.2	45.4	46.5
17.....	34.97	39.01	40.07	41.4	42.4	44.6	45.7
18.....	34.20	38.30	39.34	40.6	41.7	43.8	44.9
19.....	33.51	37.58	38.63	39.9	41.0	43.0	44.1
20.....	32.87	36.86	37.95	39.2	40.3	42.3	43.4
21.....	32.27	36.30	37.31	38.6	39.7	41.6	42.6
22.....	31.72	35.72	36.69	38.0	39.1	40.9	41.9
23.....	31.21	35.14	36.08	37.4	38.4	40.2	41.2
24.....	30.72	34.85	35.42	36.8	37.8	39.5	40.5
25.....	30.24	33.96	34.76	36.1	37.1	38.8	39.7
26.....	29.76	33.32	34.10	35.5	36.5	38.0	39.0
27.....	29.25	32.68	33.45	34.8	36.0	37.3	38.2
28.....	28.73	32.03	32.80	34.1	35.1	36.6	37.4
29.....	28.18	31.37	32.13	33.4	34.4	35.8	36.7
30.....	27.60	30.71	31.44	32.7	33.7	35.1	35.9
31.....	26.99	30.05	30.76	32.0	33.0	34.3	35.1
32.....	26.36	29.39	30.09	31.3	32.3	33.5	34.3
33.....	25.74	28.71	29.44	30.6	31.5	32.8	33.5
34.....	25.14	28.03	28.77	29.9	30.8	32.0	32.7
35.....	24.60	27.34	28.08	29.2	30.1	31.3	32.0
36.....	24.07	26.71	27.40	28.5	29.4	30.5	31.2
37.....	23.53	26.06	26.72	27.9	28.7	29.8	30.4
38.....	22.98	25.40	26.04	27.2	28.0	29.1	29.7
39.....	22.42	24.74	25.37	26.5	27.2	28.3	28.9
40.....	21.86	24.06	24.71	25.8	26.5	27.6	28.1
41.....	21.28	23.47	24.05	25.1	25.8	26.9	27.4
42.....	20.71	22.88	23.40	24.4	25.1	26.1	26.6
43.....	20.13	22.27	22.70	23.7	24.4	25.4	25.9
44.....	19.56	21.65	22.10	23.1	23.7	24.7	25.1
45.....	19.00	21.02	21.45	22.4	23.0	24.0	24.3
46.....	18.45	20.44	20.83	21.8	22.3	23.3	23.6
47.....	17.79	19.48	20.18	21.1	21.7	22.6	22.9
48.....	17.40	19.23	19.54	20.5	21.0	21.9	22.2
49.....	16.89	18.62	18.90	19.9	20.3	21.2	21.5
50.....	16.41	17.98	18.25	19.2	19.6	20.5	20.7
51.....	15.89	17.38	17.64	18.6	19.0	19.8	20.0
52.....	15.38	16.76	17.04	17.9	18.3	19.1	19.4
53.....	14.88	16.13	16.45	17.3	17.7	18.4	18.7
54.....	14.39	15.56	15.88	16.7	17.0	17.7	18.0
55.....	13.90	14.98	15.34	16.1	16.4	17.1	17.3
56.....	13.43	14.38	14.79	15.5	15.8	16.4	16.6
57.....	12.96	13.83	14.34	14.9	15.1	15.8	16.0
58.....	12.50	13.26	13.67	14.3	14.5	15.2	15.3
59.....	12.05	12.67	13.15	13.8	13.9	14.5	14.7
60.....	11.60	12.14	12.57	13.2	13.3	13.9	14.0
61.....	11.17	11.59	12.03	12.6	12.8	13.3	13.4
62.....	10.74	11.01	11.51	12.1	12.2	12.7	12.8
63.....	10.31	10.50	10.94	11.5	11.6	12.2	12.2

TABLE II.—*Continued.*

Complete Expectation of Life—Males.

Age.	1816-25	1840-51	1850-59	1860-69	1870-79	1880-89	1890-99
64.....	9.89	9.95	10.43	11.0	11.1	11.6	11.7
65.....	9.47	9.38	9.93	10.5	10.6	11.1	11.1
66.....	9.06	8.93	9.49	10.0	10.1	10.5	10.6
67.....	8.65	8.44	9.03	9.5	9.6	10.0	10.0
68.....	8.25	8.06	8.60	9.1	9.1	9.5	9.5
69.....	7.85	7.65	8.20	8.6	8.6	9.0	9.0
70.....	7.47	7.22	7.75	8.1	8.2	8.5	8.6
71.....	7.16	6.75	7.37	7.7	7.7	8.1	8.1
72.....	6.86	6.39	6.97	7.3	7.3	7.6	7.7
73.....	6.57	5.99	6.56	6.9	6.9	7.2	7.2
74.....	6.28	5.71	6.22	6.5	6.5	6.8	6.8
75.....	6.00	5.39	5.85	6.2	6.1	6.4	6.4
76.....	5.73	5.10	5.49	5.9	5.8	6.1	6.0
77.....	5.47	4.78	5.13	5.5	5.5	5.7	5.7
78.....	5.22	4.56	4.84	5.2	5.2	5.4	5.3
79.....	4.99	4.29	4.61	4.9	4.9	5.1	5.0
80.....	4.77	4.02	4.23	4.6	4.6	4.7	4.7
81.....	4.58	3.69	4.00	4.4	4.3	4.5	4.4
82.....	4.41	3.55	3.86	4.1	4.0	4.2	4.2
83.....	4.26	3.36	3.60	3.8	3.7	3.9	3.9
84.....	4.14	3.19	3.45	3.6	3.5	3.7	3.6
85.....	4.05	2.98	3.28	3.4	3.3	3.5	3.4
86.....	4.00	2.85	3.09	3.2	3.1	3.2	3.1
87.....	3.98	2.67	2.99	3.0	2.8	3.0	2.9
88.....	3.99	2.59	2.84	2.9	2.6	2.7	2.7
89.....	3.99	2.48	2.69	2.7	2.5	2.4	2.4
90.....	3.90	2.18	2.37	2.4	2.2	2.1	2.1
91.....	3.78	2.17	2.47	2.2	2.0	1.9	1.9
92.....	3.72	2.40	2.56	2.1	1.7	1.6	1.6
93.....	3.60	2.32	2.51	1.9	1.5	1.4	1.4
94.....	3.54	2.16	2.35	1.7	1.3	1.2	1.2
95.....	3.51	1.89	2.35	1.5	1.1	1.1	1.0
96.....	3.05	1.78	2.30	1.3	0.9	0.9	0.9
97.....	2.69	1.67	1.94	1.1	0.6	0.8	0.7
98.....	2.12	1.44	1.54	0.9	...	0.5	0.5
99.....	1.55	0.98	1.26	0.8	...	...	...
100.....	0.95	0.50	0.50	0.5	...	...	...
101.....	0.50	....	....	...	...	...	...

Complete Expectation of Life—Females.

Age.	1816-25	1840-51	1850-59	1860-69	1870-79	1880-89	1890-99
0.....	35.12	37.76	38.21	39.1	40.7	45.0	49.0
1.....	43.04	45.28	45.61	46.7	48.9	52.9	56.2
2.....	45.67	47.55	47.97	49.0	51.3	54.9	57.8
3.....	47.22	48.40	48.88	49.9	51.9	55.3	57.8
4.....	47.71	48.65	49.06	50.2	51.9	55.2	57.4
5.....	47.77	48.63	48.89	49.9	51.6	54.8	56.8
6.....	47.56	48.39	48.67	49.6	51.3	54.3	56.2
7.....	47.05	47.88	48.09	49.2	50.8	53.7	55.5
8.....	46.39	47.36	47.55	48.7	50.1	53.0	54.7
9.....	45.74	46.71	46.93	48.1	49.4	52.2	53.9
10.....	45.03	46.07	46.26	47.4	48.7	51.5	53.0
11.....	44.31	45.35	45.53	46.7	48.0	50.6	52.2
12.....	43.51	44.62	44.79	46.0	47.2	49.8	51.4
13.....	42.68	43.85	44.05	45.2	46.4	49.0	50.5
14.....	41.83	43.07	43.29	44.5	45.6	48.2	49.7
15.....	40.97	42.31	42.53	43.7	44.9	47.4	48.9
16.....	40.13	41.55	41.80	43.0	44.1	46.6	48.0
17.....	39.31	40.85	41.16	42.3	43.4	45.8	47.2

TABLE II.—*Continued.*

Complete Expectation of Life—Females.

Age.	1816-25	1840-51	1850-59	1860-69	1870-79	1880-89	1890-99
18.....	38.51	40.14	40.35	41.6	42.6	45.0	46.4
19.....	37.73	39.43	39.63	40.8	41.9	44.3	45.6
20.....	36.99	38.71	38.92	40.1	41.2	43.5	44.8
21.....	36.28	38.04	38.11	39.4	40.5	42.7	44.0
22.....	35.59	37.36	37.47	38.7	39.8	42.0	43.3
23.....	34.93	36.68	36.80	38.0	39.1	41.2	42.5
24.....	34.29	35.99	36.09	37.3	38.4	40.5	41.8
25.....	33.67	35.29	35.40	36.6	37.7	39.7	40.9
26.....	33.06	34.64	34.73	35.9	37.0	39.0	40.1
27.....	32.46	33.98	34.07	35.2	36.3	38.3	39.4
28.....	31.87	33.32	33.42	34.6	35.6	37.5	38.6
29.....	31.27	32.65	32.81	33.9	35.0	36.8	37.8
30.....	30.68	31.98	32.16	33.3	34.3	36.1	37.1
31.....	30.09	31.36	31.52	32.6	33.7	35.4	36.3
32.....	29.50	30.74	30.94	32.0	33.0	34.7	35.6
33.....	28.91	30.11	30.36	31.4	32.4	34.0	34.8
34.....	28.32	29.47	29.76	30.8	31.7	33.3	34.1
35.....	27.75	28.82	29.16	30.1	31.1	32.6	33.3
36.....	26.77	28.23	28.54	29.5	30.4	31.9	32.6
37.....	26.61	27.63	27.91	28.9	29.8	31.3	31.9
38.....	26.03	27.02	27.31	28.3	29.2	30.6	31.1
39.....	25.45	26.39	26.73	27.7	28.5	29.9	30.4
40.....	24.84	25.77	26.13	27.1	27.9	29.2	29.7
41.....	24.23	25.17	25.53	26.5	27.2	28.5	29.0
42.....	23.61	24.57	24.94	25.8	26.6	27.8	28.2
43.....	22.99	23.96	24.32	25.2	25.9	27.1	27.5
44.....	22.36	23.33	23.66	24.5	25.2	26.4	26.7
45.....	21.73	22.70	22.97	23.9	24.5	25.7	26.0
46.....	21.11	22.05	22.31	23.2	23.8	24.9	25.2
47.....	20.49	21.39	21.67	22.5	23.1	24.2	24.5
48.....	19.88	20.72	20.92	21.8	22.4	23.4	23.7
49.....	19.28	20.03	20.23	21.1	21.7	22.7	22.9
50.....	18.70	19.34	19.51	20.4	21.0	21.9	22.2
51.....	18.12	18.69	18.84	19.8	20.3	21.2	21.4
52.....	17.54	18.03	18.19	19.1	19.5	20.5	20.7
53.....	16.96	17.35	17.54	18.4	18.8	19.7	19.9
54.....	16.38	16.72	16.90	17.7	18.1	19.0	19.2
55.....	15.79	16.07	16.26	17.0	17.4	18.3	18.5
56.....	15.17	15.41	15.61	16.4	16.7	17.6	17.8
57.....	14.56	14.80	15.00	15.7	16.1	16.9	17.0
58.....	13.97	14.18	14.39	15.1	15.4	16.2	16.3
59.....	13.39	13.54	13.84	14.4	14.7	15.5	15.6
60.....	12.84	12.94	13.12	13.8	14.1	14.8	15.0
61.....	12.30	12.32	12.52	13.2	13.4	14.2	14.3
62.....	11.78	11.68	11.92	12.6	12.8	13.5	13.6
63.....	11.27	11.12	11.34	12.0	12.2	21.9	13.0
64.....	10.78	10.54	10.80	11.5	11.6	12.3	12.4
65.....	10.30	9.93	10.27	10.9	11.0	11.7	11.8
66.....	9.83	9.42	9.79	10.4	10.5	11.1	11.2
67.....	9.36	8.88	9.31	9.9	9.9	10.5	10.6
68.....	8.90	8.47	8.84	9.3	9.4	10.0	10.1
69.....	8.45	8.02	8.44	8.9	8.9	9.5	9.6
70.....	8.01	7.57	7.95	8.4	8.4	9.0	9.0
71.....	7.58	7.09	7.54	8.0	7.9	8.5	8.5
72.....	7.18	6.71	7.14	7.5	7.5	8.0	8.1
73.....	6.82	6.30	6.73	7.1	7.1	7.5	7.6
74.....	6.46	6.00	6.36	6.7	6.7	7.1	7.2
75.....	6.13	5.66	5.99	6.4	6.3	6.7	6.8
76.....	5.82	5.35	5.64	6.0	5.9	6.3	6.4
77.....	5.53	5.00	5.33	5.7	5.6	5.9	6.0
78.....	5.25	4.75	5.04	5.3	5.3	5.6	5.6
79.....	4.99	4.45	4.78	5.1	5.0	5.2	5.3
80.....	4.76	4.14	4.41	4.8	4.7	4.9	5.0

TABLE II.—*Concluded.*

COMPLETE EXPECTATION OF LIFE—FEMALES.

Age.	1816-25	1840-51	1850-59	1860-69	1870-79	1880-89	1890-99
81.....	4.54	3.77	4.11	4.5	4.4	4.6	4.7
82.....	4.36	3.62	3.96	4.2	4.1	4.3	4.4
83.....	4.20	3.44	3.79	4.0	3.9	4.0	4.1
84.....	4.07	3.26	3.66	3.8	3.6	3.7	3.9
85.....	3.98	3.03	3.47	3.6	3.4	3.5	3.6
86.....	3.91	2.92	3.30	3.4	3.2	3.2	3.4
87.....	3.91	2.77	3.21	3.3	3.0	3.0	3.2
88.....	3.89	2.72	3.02	3.1	2.8	2.7	3.0
89.....	3.89	2.65	2.97	3.0	2.6	2.4	2.7
90.....	3.50	2.31	2.65	2.8	2.4	2.1	2.4
91.....	3.64	2.30	2.55	2.6	2.1	1.9	2.2
92.....	3.35	2.66	2.61	2.4	1.9	1.6	1.9
93.....	3.06	2.55	2.74	2.2	1.6	1.4	1.6
94.....	2.78	2.33	2.53	2.0	1.4	1.2	1.4
95.....	2.50	2.16	2.46	1.8	1.2	1.0	1.1
96.....	2.21	2.00	2.25	1.5	1.0	0.9	0.9
97.....	1.90	1.74	1.85	1.2	0.8	0.7	0.8
98.....	1.50	1.46	1.83	0.9	0.7	0.5	0.7
99.....	1.25	1.05	1.26	0.7	0.5	...	0.5
100.....	1.00	0.50	0.50	0.5	...	...	...
101.....	0.50	....	....	...	...	...	...

TABLE III.

NUMBER LIVING.—MALES.

Age.	1816-25.	1840-51.	1850-59.	1860-69.	1870-79.	1880-89.	1890-99.
0.....	100000	100000	100000	100000	100000	100000	100000
1.....	74870	77590	79021	78840	77843	80282	82861
2.....	68060	72272	73432	73524	72877	75744	78942
3.....	63850	69516	70594	70842	70576	73854	77519
4.....	61520	67775	68907	69138	69137	72594	76629
5.....	60020	66398	67716	67928	68128	71723	75991
6.....	58790	65357	66801	66956	67306	71072	75518
7.....	58080	64701	66077	66176	66667	70554	75133
8.....	57430	64072	65434	65725	66152	70143	74826
9.....	56890	63598	64915	65001	65728	69802	74566
10.....	56410	63107	64475	64558	65363	69508	74334
11.....	55870	62742	64132	64158	65040	69256	74127
12.....	55540	62386	63798	63803	64751	69034	73935
13.....	55340	62083	63453	63483	64484	68822	73744
14.....	55180	61781	63198	63198	64225	68609	73549
15.....	55030	61473	62909	62889	63964	68389	73346
16.....	54820	61167	62603	62581	63683	68152	73117
17.....	54540	60708	62280	62240	63361	67879	72845
18.....	54160	60252	61872	61846	62983	67554	72524
19.....	53680	59799	61409	61393	62531	67169	72158
20.....	53110	59350	60902	60884	61996	66722	71747
21.....	52450	58653	60322	60263	61407	66238	71294
22.....	51710	57964	59703	59658	60811	65755	70819
23.....	50920	57283	59067	59065	60231	65282	70352
24.....	50080	56610	58509	58497	59671	64813	69904
25.....	49240	55945	57944	57928	59135	64352	69460
26.....	48400	55342	57361	57368	58613	63901	69018
27.....	47590	54745	56786	56837	58097	63451	68589
28.....	46810	54154	56184	56297	57598	63003	68175
29.....	46080	53570	55608	55775	57109	62561	67766
30.....	45400	52992	55070	55264	56616	62126	67354
31.....	44750	52399	54511	54743	56123	61695	66936
32.....	44130	51813	53930	54252	55641	61257	66514
33.....	43500	51233	53299	53714	55160	60807	66090

TABLE III.—*Continued.*

NUMBER LIVING—MALES.

Age.	1816-25	1840-51	1850-59	1860-69	1870-79	1880-89	1890-99
34.....	42810	50660	52687	53175	54663	60349	65656
35.....	42020	50093	52114	52671	54154	59875	65206
36.....	41230	49429	51515	52098	53636	59378	64734
37.....	40440	48773	50912	51508	53114	58866	64247
38.....	39660	48126	50301	50947	52588	58346	63750
39.....	38900	47488	49662	50346	52050	57809	63245
40.....	38140	46858	48984	49735	51498	57253	62726
41.....	37390	46052	48315	49100	50927	56688	62192
42.....	36640	45260	47602	48481	50334	56113	61636
43.....	35890	44482	46857	47882	49720	55518	61046
44.....	35120	43717	46163	47155	49093	54902	60433
45.....	34330	42965	45420	46451	48452	54268	59815
46.....	33510	42109	44627	45701	47789	53611	59183
47.....	32660	41270	43861	44984	47101	52929	58509
48.....	31790	40448	43080	44231	46398	52231	57798
49.....	30880	39642	42268	43456	45683	51508	57057
50.....	29940	38852	41491	42672	44943	50751	56276
51.....	29060	37993	40601	41846	44170	49965	55450
52.....	28160	37153	39678	41053	43361	49166	54591
53.....	27240	36332	38700	40143	42517	48341	53698
54.....	26320	35349	37694	39270	41641	47474	52781
55.....	25380	34393	36563	38321	40741	46568	51839
56.....	24420	33463	35515	37377	39811	45618	50851
57.....	23460	32418	34453	36371	38850	44610	49812
58.....	22480	31406	33389	35360	37856	43535	48726
59.....	21500	30426	32213	34266	36810	42408	47583
60.....	20510	29299	31173	33221	35705	41250	46368
61.....	19530	28213	30042	32086	34559	40064	45092
62.....	18540	27168	28845	30967	33373	38837	43757
63.....	17550	25980	27759	29763	32129	37549	42342
64.....	16580	24844	26502	28497	30833	36188	40840
65.....	15610	23758	25247	27224	29503	34767	39260
66.....	14640	22389	23834	25914	28142	33301	37619
67.....	13700	21099	22471	24581	26750	31777	35926
68.....	12760	19576	21058	23237	25329	30200	34188
69.....	11840	18163	19609	21845	23870	28583	32390
70.....	10930	16827	18316	20463	22374	26913	30519
71.....	9940	15589	16873	18990	20843	25193	28595
72.....	8990	14142	15499	17632	19281	23462	26645
73.....	8090	12829	14214	16147	17710	21711	24673
74.....	7240	11349	12817	14718	16161	19936	22681
75.....	6440	10039	11550	13298	14628	18155	20693
76.....	5690	8757	10311	11916	13098	16394	18737
77.....	4980	7639	9141	10604	11614	14674	16815
78.....	4330	6463	7928	9343	10202	13025	14917
79.....	3720	5468	6734	8132	8862	11452	13064
80.....	3170	4589	5844	7026	7620	9945	11303
81.....	2660	3852	4845	5897	6491	8512	9676
82.....	2220	3041	3893	4956	5469	7182	8180
83.....	1820	2400	3183	4093	4518	5974	6805
84.....	1470	1058	2500	3321	3652	4899	5579
85.....	1180	1438	1951	2629	2894	3961	4509
86.....	930	1065	1513	2095	2260	3157	3577
87.....	730	790	1124	1599	1737	2474	2780
88.....	560	554	838	1191	1291	1910	2118
89.....	440	389	614	897	935	1436	1574
90.....	350	287	468	660	668	1040	1135
91.....	270	180	295	....	466	718	783
92.....	210	104	190	....	312	460	501
93.....	170	70	130	....	193	271	296
94.....	130	48	92	....	108	146	160
95.....	100	33	60	....	54	69	75
96.....	80	20	39	....	22	28	30

TABLE III.—*Continued.*

Number Living—Males.

Age.	1816-25	1840-51	1850-59	1860-69	1870-79	1880-89	1890-99
97.....	70	12	29	....	7	8	9
98.....	50	7	20	....	1	2	2
99.....	40	5	12	....	....	....	...
100.....	30	2	9	....	....	....	....
101.....	20	....	....	....	....	....	....
102.....	....	....	....	....	....	....	....

Number Living.—Females.

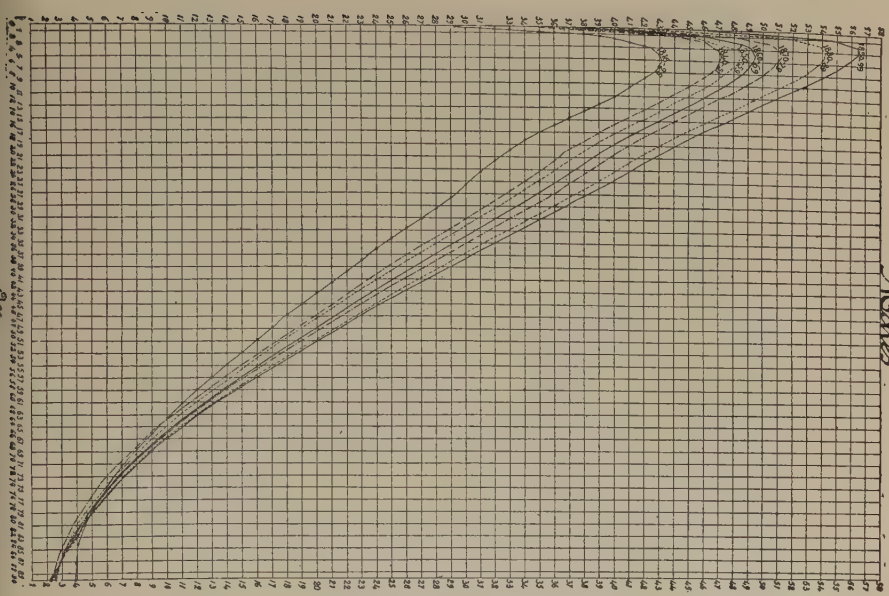
Age.	1816-25.	1840-51.	1850-59.	1860-69.	1870-79.	1880-89.	1890-99.
0.....	100000	100000	100000	100000	100000	100000	100000
1.....	79520	81396	81795	81768	81147	83465	85511
2.....	73280	75853	76124	76358	76020	78886	81762
3.....	69360	72987	73180	73507	73691	76944	80338
4.....	67220	71134	71440	71783	72250	75691	79459
5.....	65740	69707	70233	70534	71208	74803	78846
6.....	64660	68625	69281	69561	70392	74149	78384
7.....	63990	67930	68512	68774	69758	73636	78001
8.....	63530	67250	67862	68110	69245	73224	77681
9.....	63050	66758	67324	67554	68810	72876	77405
10.....	62650	66237	66843	67060	68420	72567	77157
11.....	62260	66836	66447	66624	68066	72286	76926
12.....	61970	65444	66072	66229	67747	72024	76699
13.....	61730	65105	65684	65863	67443	71768	76463
14.....	61510	64768	65319	65521	67125	71500	76214
15.....	61300	64405	64954	65146	66780	71209	75946
16.....	61060	64044	64542	64745	66406	70896	75656
17.....	60790	63502	64133	64326	66006	70556	75345
18.....	60480	63123	63683	63892	65587	70194	75024
19.....	60120	62667	63237	63461	65157	69823	74699
20.....	59710	62215	62786	63010	64721	69454	74364
21.....	59240	61686	62327	62560	64278	69084	74016
22.....	58720	61162	61878	62127	63826	68707	73660
23.....	58160	60642	61339	61627	63351	68317	73301
24.....	57560	60127	60843	61141	62854	67901	72931
25.....	56920	59616	60326	60639	62345	67459	72540
26.....	56260	59021	59758	60109	61818	67003	72132
27.....	55580	58432	59176	59570	61270	66531	71716
28.....	54880	57849	58550	58981	60714	66041	71292
29.....	54180	57272	57882	58387	60152	65536	70856
30.....	53470	56701	57244	57778	59570	65021	70403
31.....	52750	56016	56603	57154	58972	64492	69930
32.....	52030	55340	55858	56531	58360	63946	69438
33.....	51310	54672	55096	55863	57724	63383	68930
34.....	50570	54012	54370	55185	57075	62804	68409
35.....	49810	53360	53623	54510	56431	62219	67873
36.....	49030	52606	52930	53821	55777	61627	67328
37.....	48250	51863	52236	53110	55092	61021	66777
38.....	47480	51131	51488	52412	54395	60396	66207
39.....	46730	50409	50697	51660	53715	59578	65614
40.....	46000	49697	49928	50922	53051	59117	65012
41.....	45280	48911	49166	50188	52390	58480	64414
42.....	44560	48137	48377	49499	51734	57844	63821
43.....	43850	47375	47635	48776	51090	57214	63232
44.....	43140	46625	46961	48089	50456	56608	62648
45.....	42410	45887	46335	47432	49838	56030	62070
46.....	41670	45176	45654	46782	49227	55465	61490
47.....	40910	44476	45014	46162	48622	54894	60897
48.....	40130	43787	44375	45528	48022	54322	60300
49.....	39320	43109	43719	44862	47413	53740	59690
50.....	38470	42441	43103	44220	46792	53129	59055
51.....	37600	41672	42375	43523	46152	52497	58397

TABLE III.—*Continued.*

NUMBER LIVING—FEMALES.

Age.	1816-25	1840-51	1850-59	1860-69	1870-79	1880-89	1890-99
52.....	36720	40917	41579	42827	45488	51850	57713
53.....	35830	40176	40771	42105	44795	51167	56993
54.....	34940	39320	39934	41359	44075	50437	56226
55.....	34070	38483	39064	40567	43330	49683	55419
56.....	33240	37664	38210	39753	42560	48899	54579
57.....	32370	36692	37254	38903	41767	48059	53689
58.....	31460	35745	36290	38031	40931	47169	52737
59.....	30500	34823	35304	37132	40025	46243	51729
60.....	29480	33795	34405	36156	39053	45269	50675
61.....	28420	32797	33395	35082	38033	44237	49552
62.....	27310	31829	32287	34053	36964	43144	48334
63.....	26170	30624	31142	32895	35833	41968	47019
64.....	25000	29465	29873	31705	34620	40690	45617
65.....	23790	28350	28570	30454	33326	39230	44135
66.....	22580	26956	27130	29120	31982	37884	42574
67.....	21350	25360	25673	27778	30597	36368	40921
68.....	20120	23954	24235	26438	29142	34767	39177
69.....	18890	22388	22583	24932	27613	33101	37358
70.....	17650	20866	21240	23449	26033	31383	35467
71.....	16400	19447	19667	21856	24412	29610	33486
72.....	15110	17760	18139	20404	22718	27773	31430
73.....	13810	16219	16643	18802	20957	25884	29317
74.....	12530	14485	15118	17191	19182	23952	27155
75.....	11270	12936	13644	15596	17425	21996	24963
76.....	10040	11403	12207	14030	15743	20035	22760
77.....	8860	10052	10759	12503	14033	18079	20561
78.....	7750	8625	9388	11074	12352	16160	18390
79.....	6700	7401	8065	9645	10746	14300	16288
80.....	5720	6304	7033	8336	9260	12524	14288
81.....	4830	5370	5962	7061	7915	10850	12399
82.....	4020	4260	4827	6031	6693	9267	10606
83.....	3300	3379	3895	5008	5564	7782	8918
84.....	2670	2641	3081	4034	4532	6436	7376
85.....	2130	2064	2458	3240	3625	5245	6014
86.....	1680	1529	1918	2588	2846	4188	4817
87.....	1300	1132	1449	2004	2192	3283	3778
88.....	1010	798	1115	1552	1661	2538	2924
89.....	780	562	809	1168	1241	1914	2243
90.....	610	429	635	891	911	1390	1684
91.....	490	277	446	....	649	959	1229
92.....	400	158	295	....	442	614	860
93.....	320	112	192	....	283	362	559
94.....	250	81	142	....	167	195	335
95.....	190	56	97	....	89	92	178
96.....	140	37	69	....	42	37	78
97.....	100	25	52	....	17	11	27
98.....	70	16	30	....	5	2	6
99.....	40	10	23	....	1	....	1
100.....	20	5	17	....	....	....	....
101.....	10	....	....	....	....	....	....
102.....	....	....	....	....	....	....	....

Table IV



Complete Expectation of Life.

Table V

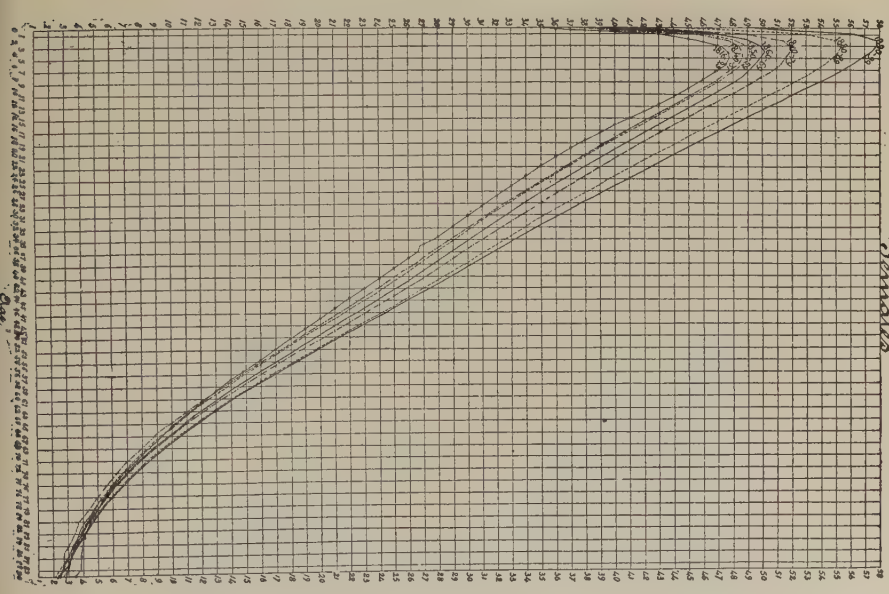


Table VI.

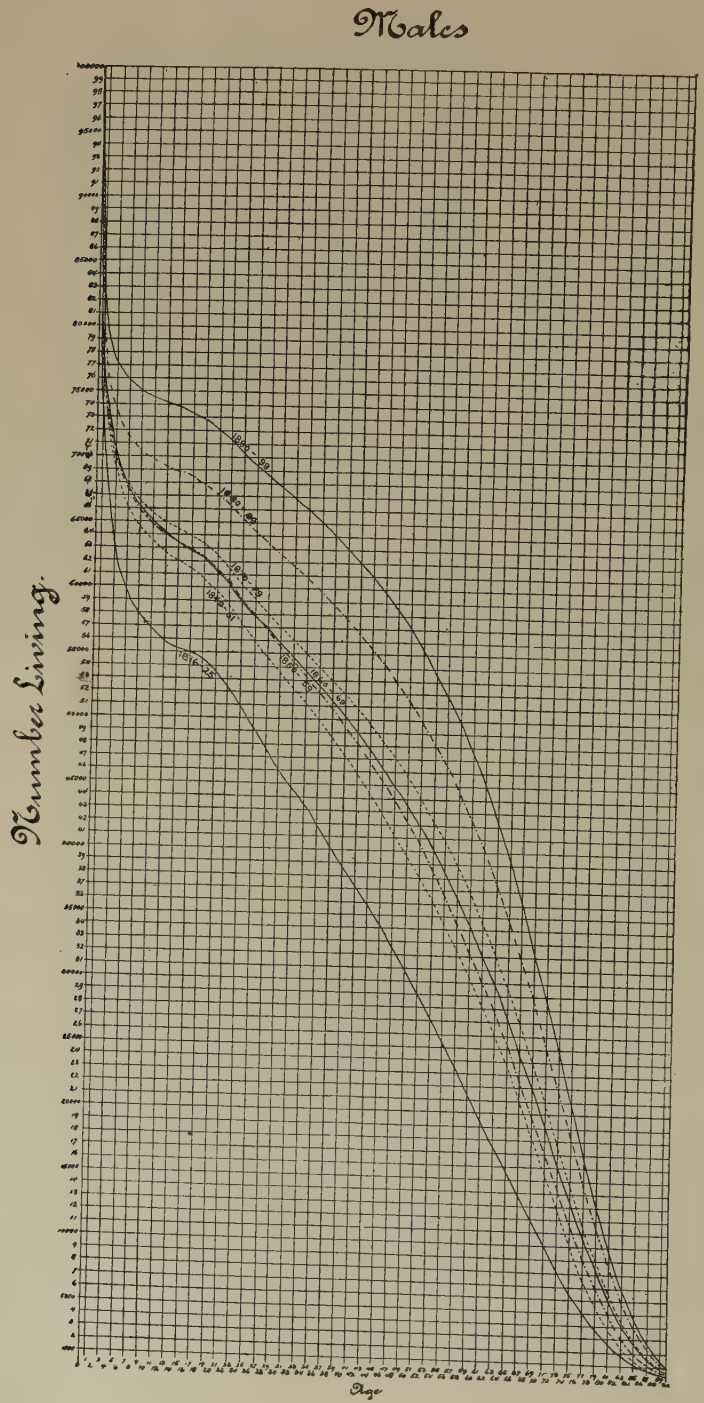
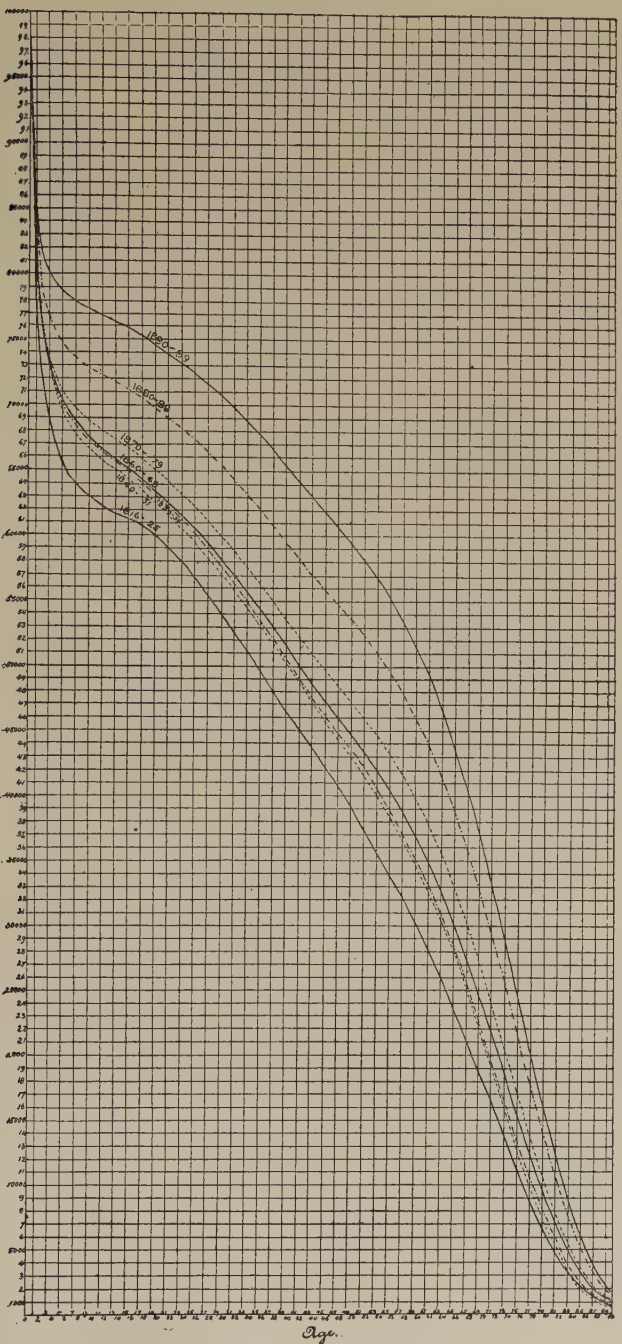

Males
Number Living.
Age
1865-69
1880-84
1895-99
1910-14
1916-25

Table VII.

Females



Abstracts received too late for translation and printing.

LA PROLONGATION DE LA VIE DANS LE DIX-NEUVIÈME SIÈCLE AUX PAYS-BAS.

By

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AND

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Afin d'étudier le changement de vitalité pendant le dix-neuvième siècle, nous ne pouvons mieux faire que de comparer les principales tables de mortalité qui ont été construites aux Pays-Bas pendant ce siècle.

Il est vrai qu'il y a d'autres données statistiques, parmi lesquelles il y en a de fort intéressantes, comme par exemple le nombre de décès, par mille et par année, parmi toute la population, mais elles nous ont semblé d'une moindre importance pour notre but.

On obtient la meilleure image de la mortalité par la probabilité de décès pour tous les âges, ensuite par les tables qu'on nomme tables de mortalité et par les tables qui donnent la vie moyenne pour les divers âges.

Ayant à comparer ces données, il nous était impossible de remonter jusqu'au commencement du dix-neuvième siècle; nous avons été forcés de nous borner à la partie du siècle pour laquelle il a été construit des tables de mortalité.

Nous n'avons considéré que la population entière, non seulement pour éviter une trop grande extention, mais aussi pour qu'il y eût le plus de chance que les déviations fortuites fussent petites. Ainsi, nous ne mentionnons pas les tables pour les diverses villes ou provinces, ni celles pour les compagnies d'assurance sur la vie. Les résultats de ces tables particulières nous ont paru être de peu d'importance pour notre but.

Cependant, nous avons fait une seule exception en considérant les tables construites par le professeur R. Lobatto d'après les données pour la ville d'Amsterdam pendant la période de 1816–1825 et publiées dans son livre: « Beschouwing van den aard, de voordeelen en de inrigting der Maatschappije van Levensverzekering.» D'abord, ces tables sont les plus anciennes du XIX^{e} siècle, et puis leur intérêt n'est pas simplement historique, puisque ce sont les premières tables hollandaises du XIX^{e} siècle qui ont servi de bases au calcul des primes pour l'assurance sur la vie.

Pour montrer la différence caractéristique de la mortalité parmi les deux sexes et du changement qui a eu lieu, nous avons considéré les sexes séparément sans mentionner les tables des sexes réunis.

Les tables de la population entière ont pour base les recensements

qui ont eu lieu toutes les dix années depuis 1829 jusqu'à 1899 et les décès qui sont survenus pendant ce temps.

Les tables pour 1840–51 ont été publiés dans le livre, « Bevolkingstafelen voor het Koningrijk der Nederlanden, 1856 »; les tables pour 1880–89 dans « Statistisch Jaarbook voor het Koningrijk der Nederlanden, 1867,» et ont été construites les unes et les autres par M. von Baumhauer.

Les tables pour 1860-69 dont la construction a été dirigée par Mr. G. de Bosch Kemper ont paru dans: « Bydragen tot de Algemeene Statistiek van Nederland,» dans lesquelles les tables de Baumhauer furent en même temps réimprimées.

Les tables pour 1870-79, 1880-89 et 1890-99 sont dues au professeur A. J. van Pesch. Les premières furent publiées dans: « Bydragen van het Statistisch Instituut No. 3, 1885,» les secondes dans: « Bydragen tot de Statistiek van Nederland, V. 1897.» Les troisièmes ne sont pas encore imprimées; mais le professeur van Pesch lui-même nous a procuré un exemplaire en manuscrit pour que nous pussions l'utiliser pour cette étude. Nous lui offrons bien des remercîments pour cette bienveillance.

Dans les tableaux I–III, nous donnons complètement les probabilités de décès, la vie moyenne et le nombre des survivants, pour sept périodes d'observation.

Encore, donnons-nous dans les tableaux IV et V les courbes qui représentent la vie moyenne et, dans les tableaux VI et VII, les courbes représentant le nombre des survivants de 100,000 enfants nouveaux-nés pour tous les âges jusqu'à 90 ans.

Les coordonnées horrizontales représentent les âges, et les coordonnées verticales la vie moyenne ou le nombre des survivants. Les tables auxquelles ces courbes correspondent sont indiquées par la période d'observation. Nous avons dû renoncer à notre projet original de représenter graphiquement les probabilités de décès; pour obtenir un bon moyen de comparaison, il eut fallu dessiner sur une fort grande échelle.

Nous ne pouvous manquer de faire observer que les probabilités pour la periode 1840–51 n'ont évidemment pas été calculées directement pour tous les âges. Les probabilités ont été calculées pour des groupes d'âges; on en a déduit le nombre des survivants pour tous les âges et ceux-ci ont servi pour donner les probabilités de décès. Conséquemment ces données n'ont qu'une valeur inférieure au nombre des survivants et à la vie moyenne qui montrent une meilleure marche. Heureusement, on a ensuite appliqué une meilleure méthode et c'est le professeur van Pesch qui y a beaucoup contribué.

C'était une très grande amélioration qu'aux quatre derniers recensements l'arrangement n'eut pas seulement lieu d'après l'âge, mais encore d'après l'année de naissance et qu'à chaque cas de décès, l'année de naissance est mentionnée dans les bordereaux de l'État civil.

Pour la construction d'une table de mortalité, le professeur van Pesch détermine le nombre d'observations à chaque âge et pendant chaque année en partant d'un recensement; les cas de décès lui font connaître le nombre des personnes des divers âges qui seraient en vie au moment du recensement suivant. La comparaison du calcul avec le résultat direct le rend à même de se rendre compte du nombre d'émigrations et d'immigrations.

Après ces éclaircissements nous demandons l'attention du lecteur pour quelques observations et conclusions auxquelles les tables et les courbes donnent lieu; nous faisons pourtant exception pour les âges les

plus élevés pour lesquels les chiffres ont peu de valeur, vu le nombre trop limité des observations.

D'abord on constate que pendant tout le siècle la mortalité parmi le sexe masculin surpasse celle parmi le sexe féminin; mais que la différence entre les probabilités de décès des deux sexes est de beaucoup la plus grande pour les tables de Lobatto; et, quoiqu'elles soient basées sur les seules données d'Amsterdam et qu'ainsi elles ne soient pas bien comparables aux autres tables, il faut pourtant observer que ce sont les tables les plus anciennes et que la différence va généralement en décroissant dans chacune des périodes suivantes. Il est peut-être aisé d'attribuer ce fait à des causes déterminées; nous n'avons pas à l'examiner maintenant.

Il y a pourtant exception pour les âges d'environ 26 ou 28 jusqu'à 41 ou 43 ans, pour lesquels la probabilité de décès du sexe féminin surpasse celle du sexe masculin. On ne saurait l'attribuer au hasard, puisque c'est le cas pour toutes les tables de la population entière et pour à peu près les mêmes séries d'âges, lesquels pourraient être nommés les âges critiques des femmes. Cependant les différences ne sont pas grandes et ne vont que jusqu'à 2½ per mille; aussi la vie moyenne du sexe féminin surpasse-t-elle celle du sexe masculin, même pour ces âges exceptionnels, la mortalité plus grande des femmes de ces âges étant amplement compensée par la plus petite mortalité des âges suivants.

Aussi pour ces âges exceptionnels, la différence entre la mortalité des deux sexes diminue continuellement de période en période; ce qui est en partie dû à la plus grande diminution de la mortalité du sexe masculin.

Les courbes dans les tableaux IV–VII donnent une image bien claire de l'augmentation de longévité pendant le siècle écoulé.

La constance de l'augmentation de la vie moyenne est vraiment remarquable. À l'exception des âges les plus élevés, les courbes des tableaux IV et V pour les soixante dernières années ne se coupent nullepart. En général, l'augmentation est plus considérable et plus régulière pour le sexe masculin que pour le sexe féminin, et pour tous deux le moins considérable pour la période 1840–60.

Il en vaut la peine d'observer le maximum de vie moyenne. Pour le sexe masculin elle a été portée de 47.1 à 56.4; pour le sexe féminin de 48.6 à 57.8; ainsi l'augmentation est, pour chaque sexe, d'environ 9 ans. L'âge qui correspond à la vie moyenne maxima, d'environ 5 ans qu'il était, est devenu environ 3 ans, conséquence de la vitalité augmentée des très jeunes enfants.

Des résultats analogues peuvent se déduire des courbes dans les tableaux VI et VII quand on cherche la vie probable. En suivant la coordonnée horizontale au nombre 50,000, on voit que la vie probable des nouveaux-nés s'est accrue de 35 jusqu'à 57 ans pour le sexe masculin et de 39 jusqu'à 61 ans pour le sexe féminin. L'augmentation est donc égale pour les deux sexes, soit 22 ans.

KURZE NOTIZ.

ÜBER DIE VERLÄNGERUNG DER LEBENSDAUER WÄHREND DES 19. JAHRHUNDERTS IN DEN NIEDERLANDEN.

Von Dr. M. C. Paraira und C. L. Landré.

Die Besserung in Langlebigkeit während des 19. Jahrhunderts in den Niederlanden ist bewiesen durch einen Vergleich der Todes-Wahrscheinlichkeit, der vollkommenen Lebenserwartung, und der Zahl der Lebenden, wie in einer Sammlung von 7 Sterblichkeits-Tabellen für die ganze Bevölkerung und zwar für männliche und weibliche Geschlecht gesondert.

Die Tabellen sind von der Zählung abgeleitet, welche alle 10 Jahre stattfindet, und in der Zwischenzeit nach den Daten des Civil-Staates. Sie Beziehen sich auf die Perioden von 1816-1825 und von 1840-1899.

Es zeigt sich, dass die Lebenserwartung stetig zugenommen hat, und dass das Maximum vom Alter von 5 Jahren auf das von 3 Jahren als eine Folge der zunehmenden Lebensfähigkeit von jungen Kindern versetzt wurde. Die wahrscheinliche Lebenszeit von neugeborenen Kindern hat ebenfalls zugenommen, und zwar von 35 zu 57 beim männlichen und von 39 zu 61 beim weiblichen Geschlecht in der Zeit-Periode von 1840-1899.

Es sind dann noch drei Tabellen mit Zahlen beigefügt, und 4 Tabellen, welche die Linien der Lebenserwartungen und die Zahlen der Lebenden enthalten.

ON THE IMPROVEMENT IN LONGEVITY IN THE UNITED STATES DURING THE NINETEENTH CENTURY.

By John K. Gore,

Actuary of the Prudential Ins. Co. of America, Newark.

The title of this paper assumes that there has been an increase in longevity in the United States during the last hundred years, although unfortunately it is not possible to prove absolutely that such is the case. No attempt to record the rate of mortality of the inhabitants of this country as a whole was made during the first half of the nineteenth century. The Report of the Seventh Census of the United States (1850) was the first to furnish data for ascertaining the mortality rate of the country during the census year. The number of deaths reported was far short of the actual number, however, and even if the deaths had been recorded accurately the record of one year in ten would be unreliable as representing the mortality of a decade, as the census year might be one in which there had been a widespread epidemic, or, on the other hand, one in which the mortality had been unusually light.

In the introduction to the Eighth Census Report (1860) is the following paragraph:

"It is manifest that neither in 1850 nor in 1860 was the entire mortality of any State ascertained and reported; nor was even such an approximation obtained as will permit any reliable calculation to be made of the rate of mortality, or any safe estimate of the proportion of the deaths to the living. The proportions of the deaths reported in 1850 and in 1860 vary so widely—from over two per cent. to less than one-half of one per cent.—that not even the amount of deficiency can be estimated. As this census of deaths, then, affords no opportunity of determining the reliable rate of mortality in the country, or any of its parts, it fails to teach some of the most important lessons which it was hoped might be derived from it; yet it gives other very valuable information, and allows other deductions of great importance to the people and renders profitable aid to sanitary science."

Furthermore, Mr. E. B. Elliott, Actuary for the Ninth Census (1870), says in his report:

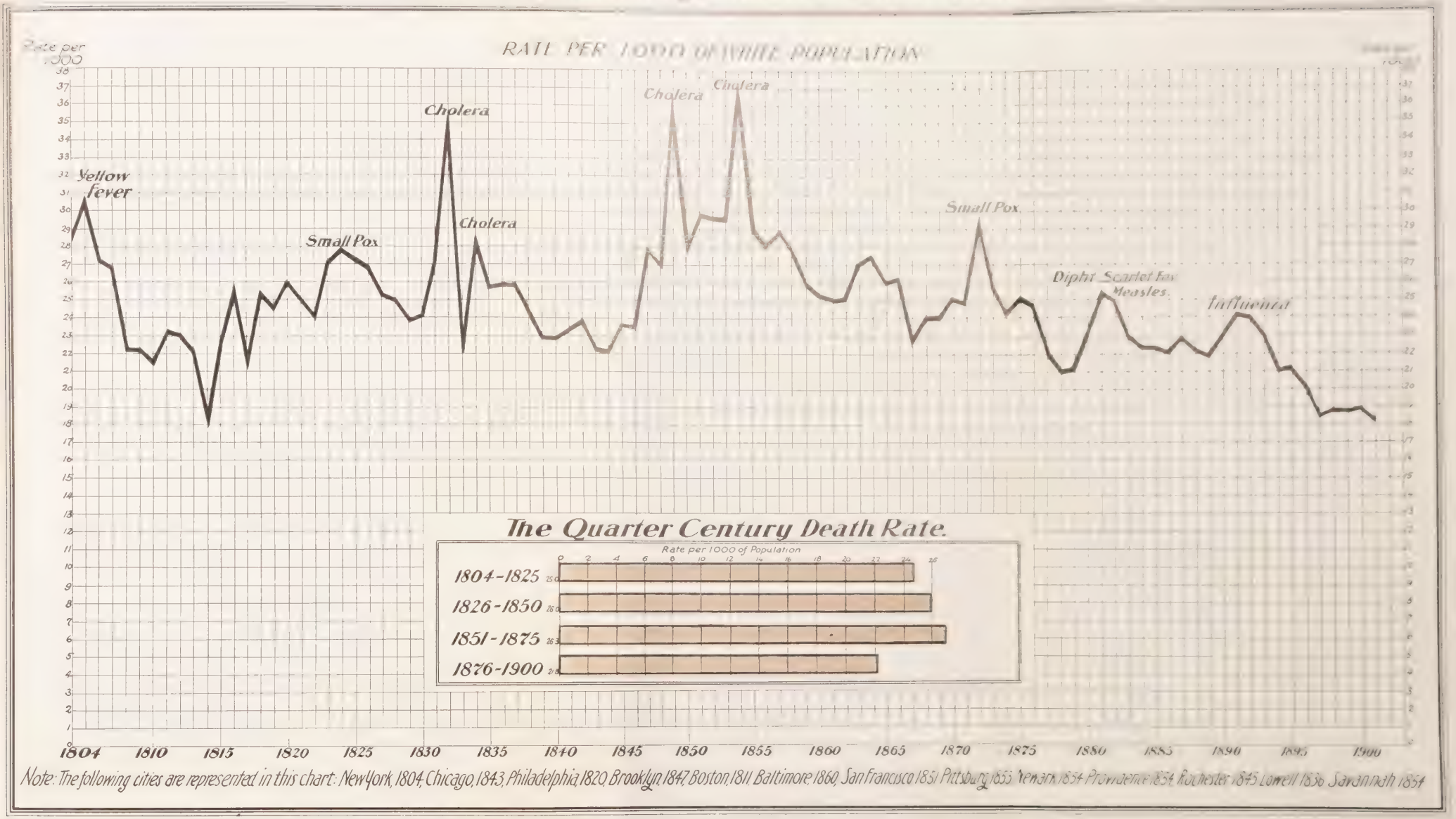
"An important difficulty is encountered at the outset of an attempt to arrive even approximately at a table which shall fairly represent the law of mortality obtaining in the general population, in the fact, manifest on intelligent inspection and confirmed by careful comparison with other analogous and trustworthy data, that the number of deaths reported as having occurred in the period above referred to falls far short of the number which must have taken place.

"In conducting the investigation proposed, this deficiency could only be supplied by resort to a somewhat arbitrary assumption, limited, however, by an investigation of the rates of mortality relative to population which obtain in other communities, so far as accessible, and in portions of our own country.

"In the construction of the following tables the deficiency in the returns of deaths was assumed to be *forty-one* per cent. of the full number of deaths which must have taken place. This assumed deficiency gives a general rate of mortality not differing greatly from that obtaining in England and Wales, and is also in substantial accord with the results of

American Mortality ~ All Causes.

White Population of Cities ~ 1804.~1901.



The Quarter Century Death Rate.

Note: The following cities are represented in this chart: New York, 1804; Chicago, 1843; Philadelphia, 1820; Brooklyn 1847; Boston, 1811; Baltimore 1860; San Francisco 1851; Pittsburg 1833; Newark 1854; Providence 1854; Rochester 1845; Lowell 1836; Savannah 1854

observation at different periods in the State of Massachusetts in our own country. It is impossible to determine with precision the amount of deficiency in the return of deaths, but from the results herein computed on the assumption of a deficiency of forty-one per cent., it is easy to calculate corresponding values which shall conform to the assumption of any other supposed rate of deficiency.

"The distribution of the ages of the living population, and of the deaths as furnished by the official returns of the census, although to some extent faulty, yield ratios which, augmented as above described, have been accepted in the construction of the following tables as satisfactorily correct."

The inaccuracies of the earlier census reports as regards the enumeration of deaths were repeated and new ones introduced in those of 1880, 1890 and 1900. It is true that in the last three reports the errors resulting from enumeration have been to a large extent corrected in certain sections of the country by making use of the system of registration maintained by the States and cities in those sections. These "registration areas," however, included less than half the population in 1900, and still smaller proportions in 1880 and 1890.

The same reasons for the utter inadequacy of a census enumeration of deaths apply at the present time as applied thirty years ago, when Mr. Elliott, in the Ninth Census Report, summed them up as follows:

"It is easy to explain the cause of the wholesale omissions from the returns of deaths in the census, which have been referred to. To take the recent census as an example, the census law required the return of all deaths occurring in families from the 1st of June, 1869, to the 31st of May, 1870; in all, twelve months. The enumeration in the course of which this was to be accomplished began on the 1st of June, 1870, and closed, nominally, on the 1st of October, but really about the 1st of January, 1871. Thus, the officers of the census were called upon to recover all the deaths occurring during the census year, at a distance in time ranging from one day to nineteen months from the dates at which such deaths severally occurred. The antecedent improbability of success in such an attempt would be of the strongest; while the actual experience of three censuses has shown that the reports of assistant marshals fall short of the true number of deaths by not far from 40 per cent. as a rule. In some cases assistant marshals fail to put the question; in others, heads of families, or persons answering for them, fail to recall the fact of a death occurring during the year, especially when ten or eleven months have already elapsed since the date of death, and the mind, not unnaturally, refers to the event as having taken place a year or longer before. In still another large number of cases, persons die *out of families*, which class of cases seems not to have been in contemplation of the census law, which makes the return of mortality a family return. In still other cases, deaths occur in families, but the very death itself breaks up the family and scatters the surviving members, leaving no one to report the death in the census. In still other cases, deaths occur in what are constructively families for the purpose of the census, i.e., boarding-houses, hotels, etc., but the common tie of membership or association is here so casual and so slight that the chances are altogether against the circumstance being retained in memory six or eight months after.

"The dimensions attained by the life-insurance interest, within the past few years, make it peculiarly a matter of regret at the present time that the census should not afford the data for determining with absolute precision and certainty the death rate of the country, whether in the aggregate or by classes of the population. This can never be done without a national scheme of registration, stringently enforced by penalties. Such a scheme, however, does not exist, and is, perhaps, in the nature

of our Government, wholly impracticable. The number of States which provide for themselves a system of registering births, deaths and marriages, will probably increase from decade to decade, while the results of registration will improve steadily with each year for which the effort is continued, affording thus fuller and better material for correcting errors and supplying deficiencies in the census statistics; but it is too much to expect, for many a decade to come, that all the States will join in efforts to secure exact information of this character."

As no data exist, therefore, from which to compare the rates of mortality for the whole country at different periods during the nineteenth century, it has seemed advisable to make use of the available mortality statistics of some of the larger cities whose records are assumed to be reliable, especially during the latter half of the century. A comparison of the death-rates of these cities at different periods should show the probable tendency of the death-rate of the country, although, of course, it cannot measure that death-rate.

Table I shows the combined estimated population, the total number of deaths and the total death-rate per thousand of population of the following thirteen American cities for the periods named:

New York	1804–1901
Boston	1811–1901
Philadelphia	1820–1842, 1846–1855, 1860–1901
Lowell	1836–1901
Chicago	1843–1901
Rochester	1845, 1847–1849, 1856–1867, 1877–1901
Brooklyn	1847–1901
San Francisco	1851–1863, 1867–1901
Pittsburgh	1853–1901
Providence	1854–1901
Savannah	1854–1901
Newark	1854, 1859–1861, 1863, 1864, 1866–1901
Baltimore	1860–1901

TABLE I.

MORTALITY OF AMERICAN CITIES.

WHITE POPULATION.

1804–1901.

Year.	No. of Cities.	Population.	Deaths.	Death-rate per 1,000.	
1804.....	1	72,822	2,084	28.6	
1805.....	1	76,358	2,297	30.5	Yellow Fever
1806.....	1	80,000	2,174	27.2	
1807.....	1	83,816	2,236	26.7	
1808.....	1	87,814	1,950	22.2	
1809.....	1	92,003	2,038	22.2	
1810.....	1	96,373	2,073	21.5	
1811.....	2	133,446	3,102	23.2	
1812.....	2	136,815	3,136	22.9	
1813.....	2	140,269	3,085	22.0	
1814.....	2	143,811	2,579	17.9	
1815.....	2	147,442	3,341	22.7	
1816.....	2	151,165	3,873	25.6	
1817.....	2	154,982	3,284	21.2	
1818.....	2	158,895	4,031	25.4	
1819.....	2	162,907	3,967	24.4	
1820.....	3	302,641	7,910	26.1	
1821.....	3	316,018	7,915	25.0	
1822.....	3	328,393	7,891	24.0	
1823.....	3	341,269	9,196	26.9	
1824.....	3	354,667	9,831	27.7	Smallpox
1825.....	3	368,609	10,094	27.4	
1826.....	3	383,117	10,279	26.8	
1827.....	3	398,216	10,023	25.2	
1828.....	3	413,930	10,294	24.9	
1829.....	3	430,285	10,183	23.7	
1830.....	3	447,301	10,787	24.1	
1831.....	3	468,785	12,639	27.0	
1832.....	3	491,408	17,344	35.3	Cholera
1833.....	3	515,135	11,503	22.3	
1834.....	3	540,231	15,420	28.5	Cholera
1835.....	3	566,702	14,581	25.7	
1836.....	4	595,082	15,326	25.8	
1837.....	4	618,645	15,872	25.7	
1838.....	4	640,033	15,579	24.3	
1839.....	4	662,291	15,085	22.8	
1840	4	685,370	15,666	22.9	
1841.....	4	718,210	16,780	23.4	
1842.....	4	752,634	17,830	23.7	
1843.....	4	500,171	11,172	22.3	
1844.....	4	525,844	11,642	22.1	
1845.....	5	578,345	13,671	23.6	
1846.....	5	922,267	21,625	23.4	
1847.....	7	1,070,073	29,623	27.7	
1848.....	7	1,128,880	30,344	26.9	
1849.....	7	1,191,424	42,964	36.1	Cholera
1850.....	6	1,221,374	33,810	27.7	

TABLE I.—*Continued.*

Year.	No. of Cities.	Population.	Deaths.	Death-rate per 1,000.	
1851.....	7	1,313,037	39,167	29.8	
1852.....	7	1,377,533	40,726	29.6	
1853.....	8	1,494,987	44,087	29.5	
1854.....	11	1,675,615	61,437	36.7	Cholera
1855.....	10	1,709,126	49,743	29.1	
1856.....	10	1,330,578	37,450	28.1	
1857.....	10	1,394,734	40,113	28.8	
1858.....	10	1,462,984	40,963	28.0	
1859.....	11	1,603,273	41,322	25.8	
1860.....	13	2,437,000	61,752	25.3	
1861.....	13	2,495,043	62,444	25.0	
1862.....	12	2,478,200	62,016	25.0	
1863.....	13	2,619,443	70,635	27.0	
1864.....	12	2,602,568	71,464	27.5	
1865.....	11	2,577,256	66,963	26.0	
1866.....	12	2,747,077	72,298	26.3	
1867.....	13	2,946,127	66,326	22.5	
1868.....	12	3,022,389	72,105	23.9	
1869.....	12	3,130,426	74,911	23.9	
1870.....	12	3,255,319	81,553	25.1	
1871.....	12	3,360,665	83,161	24.7	
1872.....	12	3,430,480	101,676	29.6	Smallpox
1873.....	12	3,630,999	93,761	25.8	
1874.....	12	3,750,862	91,330	24.3	
1875.....	12	3,874,383	97,692	25.2	
1876.....	12	3,985,825	98,746	24.8	
1877.....	13	4,229,364	93,391	22.1	
1878.....	13	4,306,347	90,202	20.9	
1879.....	13	4,431,239	92,957	21.0	
1880.....	13	4,560,362	104,140	22.8.	
1881.....	13	4,704,110	119,985	25.5	Diphtheria, Scarlet Fever, Measles
1882.....	13	4,853,980	121,122	25.0	
1883.....	13	5,010,349	114,337	22.8	
1884.....	13	5,173,589	115,893	22.4	
1885.....	13	5,344,109	119,732	22.4	
1886.....	13	5,530,936	122,251	22.1	
1887.....	13	5,726,240	130,939	22.9	
1888.....	13	5,930,635	133,103	22.4	
1889.....	13	6,144,677	134,359	21.9	
1890.....	13	6,367,678	146,167	23.0	
1891.....	13	6,569,315	159,650	24.3	Influenza
1892.....	13	6,762,286	162,426	24.0	
1893.....	13	6,961,436	161,261	23.2	
1894.....	13	7,167,080	151,584	21.2	
1895.....	13	7,379,493	157,571	21.4	
1896.....	13	7,602,329	154,528	20.3	
1897...	13	7,832,535	145,742	18.6	
1898.....	13	8,070,360	151,619	18.8	
1899.....	13	8,316,009	155,612	18.7	
1900.....	13	8,569,142	162,089	18.9	
1901.....	13	8,809,256	161,635	18.3	

Table II gives the averages of the death-rates per thousand for the years 1804–1825, 1826–1850, 1851–1875 and 1876–1901, respectively, and Table III for the years 1851–1863, 1864–1875, 1876–1888 and 1889–1901, respectively.

TABLE II.

AVERAGES OF DEATH-RATES PER 1,000 OF POPULATION.

Years.	Death-rate per 1,000.
1804–1825	24.6
1826–1850	25.7
1851–1875	26.9
1876–1901	21.9

TABLE III.

AVERAGES OF DEATH-RATES PER 1,000 OF POPULATION.

Years.	Death-rate per 1,000.
1851–1863	28.3
1864–1875	25–4
1876–1888	22.9
1889–1901	21.0

The death-rates shown in Tables I, II and III have not been corrected in accordance with a standard age distribution of population, but tests have shown that if such corrections had been made on the basis of the age distribution prevailing at the end of the century, the rate for the period 1851–1855, the period of highest mortality, would have been reduced less than two per thousand. Table II divides the century into four nearly equal parts, the figures indicating a gradual increase in the mortality rate up to the third quarter of the century, and a decided decrease in the fourth quarter. Table III divides the second half of the century into four parts, and the results here indicate a steady decrease in the death-rate throughout the period.

It is not claimed that the figures shown in these tables represent the mortality rate for the entire country. They may be accepted, however, as showing the tendency of the death-rate of the urban population, and probably of that of the country at large.

It is important to know whether the apparent decrease in the death-rate has occurred throughout the period of life or only at certain ages. I have chosen for the next set of tables, therefore, the following nineteen cities, whose population is known by age groups for two or more years during the latter half of the century, and whose deaths are known by age groups for every year during the period in which the records of these cities have been available.

New York	1850–1900
Boston	1850–1900
New Bedford	1855–1900
Cambridge	1855–1900
Fall River	1855–1900
Salem	1855–1900
Lowell	1855–1900
Worcester	1855–1900
Providence	1856–1900
Philadelphia	1860–1900
St. Louis	1880–1900
District of Columbia	1880–1900
New Orleans	1880–1900
San Francisco	1884–1900
Chicago	1887–1900
Cleveland	1890–1900
Hartford	1890–1900
New Haven	1890–1900
Bridgeport	1890–1900

In the case of most of these cities the population is known by age groups only for the census years. I have found the estimated population by age groups for the intermediate years by interpolation. In some cases the population and deaths were grouped at ages 25–34, 35–44, and so forth, instead of at ages 25–29, 30–39, and so forth. In these cases the grouping was made to conform to the one I have adopted by a further interpolation and rearrangement. This plan affects slightly the accuracy of any one age group, but has no appreciable effect upon the results sought in this investigation, whose chief object is to learn, if possible, the tendency of the gross mortality rate and of the rate at the various periods of life.

It will be noticed that these data cover only the second half of the century. Earlier records are too incomplete to be of value. Moreover, we are much more concerned with the later years than with those of the first half of the century.

In Table IV comparisons are made between the death-rates during successive five year periods from 1850; the last period, 1895–1900, however, covering six years. The death-rates at "all ages" have been corrected on the basis of age distribution of the population during the period 1895–1900.

TABLE IV, A.

COMPARISON OF DEATH-RATES.

1850–1854 and 1855–1859.

NEW YORK AND BOSTON.

Ages.	Death-rate per 1,000.		Increase.	Decrease.
	1850–1854.	1855–1859.		
Under 1	388.2	339.6	.....	48.6
1–4	81.1	65.1	.....	16.0
5–9	14.1	9.6	.....	4.5
10–19	8.2	5.9	.....	2.3
20–29	16.7	12.2	.....	4.5
30–39	21.2	15.5	.....	5.7
40–49	26.7	21.0	.....	5.7
50–59	38.2	29.6	.....	8.6
60–69	59.9	48.4	.....	11.5
70–79	113.9	104.4	.....	9.5
80 and over	209.7	178.3	.....	31.4
All ages (corrected)	35.7	28.6	.....	7.1

TABLE IV, B.

COMPARISON OF DEATH-RATES.

1855–1859 and 1860–1864.

NEW YORK, BOSTON, NEW BEDFORD, CAMBRIDGE, FALL RIVER, SALEM, LOWELL, WORCESTER AND PROVIDENCE.

Ages.	Death-rate per 1,000.		Increase.	Decrease.
	1855–1859.	1860–1864.		
Under 1	319.5	237.1	.....	82.4
1–4	62.7	61.8	.....	.9
5–9	9.5	10.6	1.1	.....
10–19	5.9	5.7	.....	.2
20–29	11.8	11.8	.....	.....
30–39	15.0	15.9	.9	.....
40–49	19.6	20.8	1.2	.....
50–59	27.6	27.7	.1	.....
60–69	45.1	47.1	2.0	.....
70–79	96.6	94.3	.....	2.3
80 and over	172.7	192.2	19.5	.....
All ages (corrected)	27.2	25.7	.....	1.5

TABLE IV, C.

COMPARISON OF DEATH-RATES.

1860–1864 and 1865–1869.

SAME CITIES AS IN IV, B, AND PHILADELPHIA.

Ages.	Death-rate per 1,000.		Increase.	Decrease.
	1860–1864.	1865–1869.		
Under 1	237.1	276.4	39.3	.....
1–4	56.9	47.6	.....	9.3
5–9	11.1	9.1	.....	2.0
10–19	6.0	5.8	.....	.2
20–29	12.3	11.8	.....	.5
30–39	15.7	14.6	.....	1.1
40–49	20.1	18.6	.....	1.5
50–59	26.8	25.5	.....	1.3
60–69	45.1	44.6	.....	.5
70–79	90.6	86.1	.....	4.5
80 and over	187.1	187.8	.7	.....
All ages (corrected)	25.2	24.5	.....	.7

TABLE IV, D.

COMPARISON OF DEATH-RATES.

1865–1869 and 1870–1874.

SAME CITIES AS IN IV, C.

Ages.	DEATH-RATE PER 1,000.		Increase.	Decrease.
	1865–1869.	1870–1874.		
Under 1	276.4	298.0	21.6	.....
1–4	47.6	47.9	.3	.....
5–9	9.1	9.4	.3	.....
10–19	5.8	6.3	.5	.....
20–29	11.8	12.4	.6	.....
30–39	14.6	15.8	1.2	.....
40–49	18.6	19.7	1.1	.....
50–59	25.5	26.5	1.0	.....
60–69	44.6	43.3	.....	1.3
70–79	86.1	91.6	5.5	.....
80 and over	187.8	191.4	3.6	.....
All ages (corrected)	24.5	25.7	1.2	.....

TABLE IV, E.

COMPARISON OF DEATH-RATES.

1870–1874 and 1875–1879.

SAME CITIES AS IN IV, D.

Ages.	DEATH-RATE PER 1,000.		Increase.	Decrease.
	1870–1874.	1875–1879.		
Under 1	298.0	234.5	.....	63.5
1–4	47.9	46.7	.....	1.2
5–9	9.4	9.6	.2	.....
10–19	6.3	5.1	.....	1.2
20–29	12.4	9.8	.....	2.6
30–39	15.8	13.5	.....	2.3
40–49	19.7	17.3	.....	2.4
50–59	26.5	24.5	.....	2.0
60–69	43.3	40.8	.....	2.5
70–79	91.6	89.1	.....	2.5
80 and over	191.4	194.4	3.0	.....
All ages (corrected)	25.7	22.5	.....	3.2

TABLE IV, F.

COMPARISON OF DEATH-RATES.

1875–1879 and 1880–1884.

SAME CITIES AS IN IV, E.

Ages.	DEATH-RATE PER 1,000.		Increase.	Decrease.
	1875–1879.	1880–1884.		
Under 1	234.5	258.5	24.0	.....
1–4	46.7	48.7	2.0	.....
5–9	9.6	10.4	.8	.....
10–19	5.1	5.4	.3	.....
20–29	9.8	11.2	1.4	.....
30–39	13.5	14.9	1.4	.....
40–49	17.3	19.3	2.0	.....
50–59	24.5	27.7	3.2	.....
60–69	40.8	46.2	5.4	.....
70–79	89.1	93.6	4.5	.....
80 and over	194.4	220.7	26.3	.....
All ages (corrected)	22.5	24.6	2.1	.....

TABLE IV, G.

COMPARISON OF DEATH-RATES.

1880–1884 and 1885–1889.

SAME CITIES AS IN IV, F, AND ST. LOUIS, SAN FRANCISCO, NEW ORLEANS (WHITE), AND DISTRICT OF COLUMBIA (WHITE).

Ages.	DEATH-RATE PER 1,000.		Increase.	Decrease.
	1880–1884.	1885–1889.		
Under 1	256.4	254.8	.....	1.6
1–4	45.9	41.4	.....	4.5
5–9	10.1	8.5	.....	1.6
10–19	5.3	5.1	.....	.2
20–29	10.9	10.0	.....	.9
30–39	14.8	14.2	.....	.6
40–49	19.1	19.0	.....	.1
50–59	27.4	28.3	.9	.....
60–69	46.0	47.9	1.9	.....
70–79	92.3	93.6	1.3	.....
80 and over	219.6	207.7	.....	11.9
All ages (corrected)	24.2	23.4	.....	.8

TABLE IV, H.

COMPARISON OF DEATH-RATES.

1885–1889 and 1890–1894.

SAME CITIES AS IN IV, G, AND CHICAGO.

Ages.	DEATH-RATE PER 1,000.		Increase.	Decrease.
	1885–1889.	1890–1894.		
Under 1	245.1	251.2	6.1	.....
1–4	39.8	37.3	.....	2.5
5–9	8.4	8.2	.....	.2
10–19	5.0	5.0	.....	.....
20–29	9.7	9.8	.1	.....
30–39	13.6	13.6	.....	.....
40–49	18.5	18.6	.1	.....
50–59	27.7	29.0	1.3	.....
60–69	47.2	49.4	2.2	.....
70–79	92.2	97.1	4.9	.....
80 and over	204.8	205.9	1.1	.....
All ages (corrected)	22.7	22.8	.1	.....

TABLE IV, I.

COMPARISON OF DEATH-RATES.

1890–1894 and 1895–1900.

SAME CITIES AS IN IV, H, AND CLEVELAND, HARTFORD, NEW HAVEN AND BRIDGEPORT.

Ages.	DEATH-RATE PER 1,000.		Increase.	Decrease.
	1890–1894.	1895–1900.		
Under 1	249.2	195.8	.....	53.4
1–4	36.7	27.3	.....	9.4
5–9	8.2	5.9	.....	2.3
10–19	5.0	4.0	.....	1.0
20–29	9.6	8.1	.....	1.5
30–39	13.4	11.5	.....	1.9
40.49	18.2	16.0	.....	2.2
50–59	28.7	26.5	.....	2.2
60–69	49.0	47.1	.....	1.9
70–79	96.2	93.5	.....	2.7
80 and over	207.5	192.1	.....	15.4
All ages (corrected)	22.6	19.0	.....	3.6

TABLE V.

INCREASE OR DECREASE IN DEATH-RATES.

1850–1900.

Ages.	'50–'54 to '55–'59.	'55–'59 to '60–'64.	'60–'64 to '65–'69.	'65–'69 to '70–'74.	'70–'74 to '75–'79.
Under 1	−48.6	−82.4	+39.3	+21.6	−63.5
1– 4	−16.0	−.9	−9.3	+.3	−1.2
5– 9	−4.5	+1.1	−2.0	+.3	+.2
10–19	−2.3	−.2	−.2	+.5	−1.2
20–29	−4.5	0.0	−.5	+.6	−2.6
30–39	−5.7	+.9	−1.1	+1.2	−2.3
40–49	−5.7	+1.2	−1.5	+1.1	−2.4
50–59	−8.6	+.1	−1.3	+1.0	−2.0
60–69	−11.5	+2.0	−.5	−1.3	−2.5
70–79	−9.5	−2.3	−4.5	+5.5	−2.5
80 and over	−31.4	+19.5	+.7	+3.6	+3.0
All ages (corrected)	−7.1	−1.5	−.7	+1.2	−3.2

Ages.	'75–'79 to '80–'84.	'80–'84 to '85–'89.	'85–'89 to '90–'94.	'90–'94 to '95–'00.	'50'–54 to '95–'00.
Under 1	+24.0	−1.6	+6.1	−53.4	−158.5
1– 4	+2.0	−4.5	−2.5	−9.4	−41.5
5– 9	+.8	−1.6	−.2	−2.3	−8.2
10–19	+.3	−.2	0.0	−1.0	−4.3
20–29	+1.4	−.9	+.1	−1.5	−7.9
30–39	+1.4	−.6	0.0	−1.9	−8.1
40–49	+2.0	−.1	+.1	−2.2	−7.5
50–59	+3.2	+.9	+1.3	−2.2	−7.6
60–69	+5.4	+1.9	+2.2	−1.9	−6.2
70–79	+4.5	+1.3	+4.9	−2.7	−5.3
80 and over	+26.3	−11.9	+1.1	−15.4	−4.5
All ages (corrected)	+2.1	−.8	+.1	−3.6	−13.5

It will be observed from Table IV that the rate of mortality during the period 1850–1854 is much greater than that of any other period under observation, the cholera epidemic of 1854 being probably the most disastrous of the century. The period 1855–1859 shows a marked decrease in the death-rate at all groups of ages, due to the excessive mortality of the previous five years. From 1855–59 to 1860–64 there is a decrease at most of the younger and an increase at most of the older ages. From 1860–64 to 1865–69 there is an increase at all ages except under age 1 and over age 79. The period 1870–74 includes the fatal smallpox epidemic of 1872 and shows an increase in the death-rate at every age group but one. As a result the years 1875–79 exhibit a decrease at almost all ages. In 1881 diphtheria, scarlet fever and measles were excessively prevalent over a large area, and the period 1880–84 shows a relatively high death-rate. A slight decrease, except at the older ages, is shown in 1885–89, and the influenza epidemic in 1891 caused an increase in the death-rate during the years 1890–94, especially among those advanced in years. The last five years of the century were distinguished by a marked decrease in the rate of mortality at all age groups.

The last column of Table V summarizes the half-century's changes in the death-rate and indicates a decrease at all age groups. The apparent reduction in the rate on the lives of infants under one year of age is 158.5 per thousand population. For ages 1 to 4 the reduction is 41.5. At the other age groups the reduction in the death-rate varies from 8.2 to 4.3. The reduction in the death-rate of the total population is 13.5.

As the period 1850–54 was subject to an abnormally heavy rate of mortality it should probably be excluded from any conclusions drawn as to the tendency of the death-rate during the latter half of the nineteenth century. If, therefore, we omit that period, the figures shown in Table VI represent the changes in the death-rate for the years 1855–1900.

TABLE VI.

INCREASE OR DECREASE IN DEATH-RATES.

1855–1900.

Ages.	'55–'59 to '95–'00.
Under 1	−109.9
1– 4	−25.5
5– 9	−3.7
10–19	−2.0
20–29	−3.4
30–39	−2.4
40–49	−1.8
50–59	+1.0
60–69	+5.3
70–79	+4.2
80 and over	+26.9
All ages (corrected)	−6.4

The indications from Table VI are that for the period 1855–59 to 1895–00 there was a large decrease in the death-rate at the youngest ages, a small decrease up to age 50 and an increase thereafter, especially at the oldest ages.

The decided decrease in the death-rate during the period 1895–1900 may appear to some abnormal, although the returns received from the cities under consideration for the years 1901 and 1902 indicate still lower rates of mortality. Supposing, however, that the very low death-rates prevailing during the years 1895–1900 will not continue, and excluding that period, we obtain Table VII, which exhibits the changes in mortality rates for the period 1855–59 to 1890–94.

TABLE VII.

INCREASE OR DECREASE IN DEATH-RATES.

1855–1894.

Ages.	'55–'59 to '90–'94.
Under 1	−56.5
1– 4	−16.1
5– 9	−1.4
10–19	−1.0
20–29	−1.9
30–39	−.5
40–49	+.4
50–59	+3.2
60–69	+7.2
70–79	+6.9
80 and over	+42.3
All ages (corrected)	−2.8

Table VII gives results similar in kind to those obtained in Table VI, showing a large decrease at the youngest ages, a very small decrease up to age 40, a very slight increase at ages 40–49 and larger increases at the higher ages, especially at the highest ages.

The evidence of the foregoing seven tables is to the effect that the expectation of life of the urban population of the United States at the close of the nineteenth century was greater than that of the urban population at the beginning of the century. It is probable that the mortality rate of cities increased somewhat during the first fifty years, and there can be no doubt that the decrease during the latter half of the century exceeded the increase of the first half.

Information as to changes in the death-rate by age groups is wanting or unreliable before 1850, but the data in our possession indicate that since that time there has been a decrease in the rate of mortality at all ages up to 50. The reverse seems to be true for ages above 50 if we leave out of the consideration the years 1850–54, although the years 1895–1900 show a decrease at all age groups.

It should be said in passing that the records of population and deaths for infants under one year of age abound in errors even at the present time. Nevertheless, there can be no doubt that there has been a vast improvement in the conditions surrounding infant life, and that while our calculated death-rates for the youngest age of life may be far from correct, the indicated tendency may be relied upon.

Next in importance to the tendency of the death-rate is the increase or decrease in the more important causes of death. Tables VIII and IX give for a number of northern and southern cities, respectively, the death-rate per 10,000 of population from twelve causes chiefly affecting adult lives. I have not been able in the time at my disposal to secure data from the same sources for diseases belonging mostly to childhood, but have found it more convenient to use in this connection the records of the five cities, New York, Philadelphia, Boston, Newark and Jersey City.

The rates for northern cities and for the cities showing results from children's diseases are given for thirty years, 1871–1900; for southern cities they are given for twenty-five years, as the data for only one city were available for the period 1871–1875.

TABLE VIII.

DEATH-RATE PER 10,000 OF POPULATION FROM VARIOUS CAUSES AFFECTING CHIEFLY ADULT LIVES.

1871–1900.

NORTHERN CITIES.

Year.	Typhoid Fever.		Phthisis.		Pneumonia.		Bronchitis.	
	No. of Cities.	Rate per 10,000.	No. of Cities.	Rate per 10,000.	No. of Cities.	Rate per 10,000.	No. of Cities.	Rate per 10,000.
1871	9	4.50	10	32.49	9	14.60	9	5.48
1872	10	5.89	11	33.33	10	16.87	10	5.84
1873	12	5.27	13	31.48	10	16.34	10	5.71
1874	11	4.61	12	30.40	10	16.04	9	6.12
1875	13	4.78	14	30.99	12	18.23	11	6.48
1876	12	4.76	13	31.26	11	16.58	10	6.95
1877	13	4.15	14	29.38	12	13.78	11	5.78
1878	14	3.34	15	29.75	13	14.04	12	6.39
1879	24	3.09	25	29.08	14	15.67	14	6.47
1880	41	4.01	41	30.05	29	16.54	28	7.20
1881	41	6.42	41	32.56	29	17.19	28	7.37
1882	41	5.92	41	31.57	30	18.88	28	8.47
1883	41	5.29	41	30.99	29	17.89	28	7.54
1884	42	4.83	41	29.85	29	17.82	27	7.66
1885	44	4.35	44	28.76	33	18.23	30	8.15
1886	45	4.23	45	28.55	33	16.78	30	8.06
1887	44	4.87	44	27.91	32	17.47	29	8.43
1888	45	4.63	45	26.36	33	18.90	31	8.52
1889	47	4.73	47	24.74	36	17.72	32	8.00
1890	48	5.18	48	25.90	36	21.66	34	9.58
1891	50	5.96	50	24.02	37	24.43	36	9.95
1892	50	5.11	50	23.68	37	22.89	36	9.32
1893	50	3.94	49	23.12	37	24.06	36	8.82
1894	50	3.16	50	21.78	38	18.30	37	7.38
1895	51	3.23	51	21.95	39	21.51	39	7.82
1896	51	3.24	51	20.86	40	20.24	39	6.94
1897	50	2.59	51	19.97	39	18.71	38	6.12
1898	50	3.19	50	19.89	38	19.20	36	6.15
1899	50	3.28	50	20.13	39	20.37	37	5.90
1900	49	2.86	49	19.16	38	22.46	36	5.87

TABLE VIII.—*Continued.*

Year.	Heart Diseases.		Apoplexy.		Urinary Diseases.		Liver Diseases.	
	No. of Cities.	Rate per 10,000.	No. of Cities.	Rate per 10,000.	No. of Cities.	Rate per 10,000.	No. of Cities.	Rate per 10,000.
1871	5	7.95	9	3.41	3	8.19	4	3.14
1872	7	8.60	10	3.82	5	8.12	6	3.50
1873	8	8.03	10	3.75	5	7.03	7	3.13
1874	6	8.30	9	3.41	5	7.51	5	3.04
1875	6	8.60	11	3.21	4	8.25	5	3.28
1876	7	8.65	10	3.25	4	8.10	5	2.98
1877	6	7.24	11	3.03	4	7.89	5	2.61
1878	7	8.61	12	3.25	4	8.23	5	2.65
1879	10	8.95	12	3.42	7	9.07	8	2.89
1880	11	9.07	27	3.37	8	8.42	9	2.92
1881	11	9.93	27	3.78	6	10.73	8	3.12
1882	11	10.77	27	4.15	8	10.68	9	2.96
1883	10	11.03	27	4.06	7	11.42	8	3.10
1884	12	11.05	26	4.22	11	9.70	11	3.15
1885	16	11.41	29	4.17	11	11.02	13	2.98
1886	17	11.44	30	4.24	12	11.46	14	3.22
1887	18	11.94	29	4.87	16	9.65	17	2.96
1888	19	11.43	30	4.60	16	9.95	17	2.76
1889	22	11.60	32	4.45	18	10.56	20	2.82
1890	25	12.36	34	4.49	24	9.68	25	2.72
1891	30	13.01	36	4.67	29	10.00	30	2.74
1892	30	13.39	36	5.14	29	9.96	30	2.77
1893	30	13.06	36	5.40	29	10.80	30	2.63
1894	33	11.87	37	5.41	31	10.14	32	2.36
1895	35	12.52	39	5.52	33	10.95	33	2.56
1896	36	12.72	39	5.55	35	11.09	34	2.75
1897	34	11.81	38	5.35	35	10.64	33	2.34
1898	33	11.96	37	5.72	32	11.28	30	2.44
1899	35	12.40	38	5.84	32	12.06	30	2.42
1900	33	12.73	37	5.82	31	12.37	30	2.61

TABLE VIII.—*Continued.*

Year.	Cancer.		Paralysis.		Accidents.		Suicide.	
	No. of Cities.	Rate per 10,000.	No. of Cities.	Rate per 10,000.	No. of Cities.	Rate per 10,000.	No. of Cities.	Rate per 10,000.
1871	9	3.44	8	1.83	7	8.92	12	0.91
1872	10	3.62	9	2.02	8	9.06	12	1.11
1873	11	3.77	9	1.95	9	7.61	13	0.98
1874	10	3.75	8	1.85	8	7.15	12	1.25
1875	11	3.79	10	1.99	10	7.11	14	1.25
1876	11	4.64	9	2.00	9	8.22	14	1.24
1877	12	4.19	9	1.96	9	5.66	15	1.34
1878	13	4.48	10	1.96	9	5.73	16	1.21
1879	22	4.94	11	2.15	13	6.02	17	1.10
1880	33	5.11	17	2.42	25	7.26	31	1.15
1881	32	5.57	17	2.86	25	7.62	30	1.24
1882	33	5.39	19	2.46	27	7.61	30	1.38
1883	32	4.82	17	2.41	26	7.55	30	1.24
1884	32	5.12	16	2.57	25	7.08	31	1.39
1885	34	4.81	18	2.57	26	7.11	33	1.28
1886	37	4.82	20	2.57	28	7.03	33	1.29
1887	36	5.10	21	2.48	27	8.64	33	1.28
1888	38	5.00	23	2.56	29	7.80	33	1.40
1889	41	4.92	24	2.31	30	7.08	48	1.31
1890	44	5.17	27	2.27	33	8.68	59	1.24
1891	47	5.30	30	2.28	35	8.48	60	1.44
1892	48	5.52	31	2.37	35	9.59	60	1.38
1893	48	5.27	31	2.19	35	8.80	60	1.64
1894	49	5.32	32	2.08	37	8.20	60	1.62
1895	50	5.67	35	1.85	38	8.37	61	1.64
1896	51	5.78	34	1.59	39	9.56	61	1.69
1897	50	5.76	33	1.60	36	7.64	58	1.70
1898	49	5.95	31	1.65	35	7.73	57	1.80
1899	50	6.13	30	1.45	36	7.33	57	1.67
1900	49	5.56	30	1.53	35	7.40	57	1.70

TABLE IX.

DEATH-RATE PER 10,000 OF POPULATION FROM VARIOUS CAUSES AFFECTING CHIEFLY ADULT LIVES.

1876–1900.

SOUTHERN CITIES (WHITE).

Year.	TYPHOID FEVER.		PHTHISIS.		PNEUMONIA.		BRONCHITIS.	
	No. of Cities.	Rate per 10,000.	No. of Cities.	Rate per 10,000.	No. of Cities.	Rate per 10,000.	No. of Cities.	Rate per 10,000.
1876.....	4	6.06	4	31.50	3	14.04	3	3.75
1877.....	5	4.94	5	28.16	4	11.77	4	3.49
1878.....	5	4.74	5	30.39	4	11.12	4	3.59
1879.....	5	4.10	5	29.98	4	11.24	4	4.09
1880.....	5	4.78	5	30.76	4	10.33	4	3.67
1881.....	7	5.06	8	29.91	6	10.17	6	2.80
1882.....	7	5.80	7	29.79	6	9.01	6	3.39
1883.....	8	4.35	9	28.37	7	12.06	7	3.99
1884.....	8	5.39	9	28.11	7	11.48	7	4.92
1885.....	9	4.86	9	29.14	8	11.28	8	4.04
1886.....	9	4.13	9	26.42	8	10.43	8	4.27
1887.....	9	4.71	8	24.28	8	10.46	8	4.29
1888.....	10	5.73	9	24.05	9	9.62	9	3.98
1889.....	11	5.59	10	22.02	10	10.27	10	3.71
1890.....	11	7.39	10	23.20	10	12.53	10	5.44
1891.....	12	5.85	12	21.95	11	14.22	11	5.44
1892.....	12	5.95	12	21.25	11	12.83	11	5.43
1893.....	12	5.59	11	21.39	11	11.57	11	5.40
1894.....	12	5.76	11	20.29	11	8.86	11	4.18
1895.....	10	5.33	9	19.44	9	13.08	9	4.41
1896.....	12	5.02	11	19.14	11	13.82	11	4.04
1897.....	11	5.10	10	18.43	10	10.98	10	3.50
1898.....	11	4.97	10	18.29	10	11.54	10	3.30
1899.....	9	4.60	9	17.78	8	13.61	8	4.17
1900.....	10	4.84	9	18.28	9	14.59	9	3.61

TABLE IX.—*Continued.*

Year.	Heart Diseases.		Apoplexy.		Urinary Diseases.		Liver Diseases.	
	No. of Cities.	Rate per 10,000.	No. of Cities.	Rate per 10,000.	No. of Cities.	Rate per 10,000.	No. of Cities.	Rate per 10,000.
1876	2	7.80	3	5.70	1	1.57	1	No record
1877	3	8.56	4	4.99	2	4.08	2	5.33
1878	2	8.86	4	5.73	1	9.95	1	6.01
1879	3	7.84	4	5.06	3	4.39	3	3.35
1880	2	8.26	4	4.33	2	3.97	2	2.60
1881	2	6.62	6	5.11	1	No record	1	6.98
1882	4	10.13	6	4.57	3	5.17	3	4.52
1883	4	10.32	7	5.48	4	4.61	4	3.06
1884	5	11.35	7	5.72	5	6.39	5	4.88
1885	6	11.53	8	5.15	6	5.98	6	4.71
1886	6	11.00	8	4.99	5	6.52	6	3.84
1887	6	11.33	8	5.51	6	6.88	6	4.06
1888	6	10.69	9	5.17	6	6.64	6	4.44
1889	9	12.14	10	5.27	9	7.23	9	3.86
1890	10	12.81	10	5.70	10	8.10	10	4.01
1891	11	13.58	11	5.46	11	8.09	11	4.03
1892	11	13.07	11	6.14	11	9.06	11	4.40
1893	11	12.54	11	6.99	11	8.96	11	4.33
1894	11	11.84	11	6.77	11	8.73	11	3.84
1895	9	13.29	9	6.72	9	10.54	9	4.36
1896	11	12.55	11	6.64	11	10.26	11	4.29
1897	10	12.52	10	5.93	10	10.23	10	3.70
1898	10	13.03	10	7.23	10	11.39	10	3.96
1899	8	14.34	8	7.25	8	13.86	8	3.30
1900	9	14.93	9	7.38	9	12.15	9	3.32

TABLE IX.—*Continued.*

Year.	Cancer.		Paralysis.		Accidents.		Suicide.	
	No. of Cities.	Rate per 10,000.	No. of Cities.	Rate per 10,000.	No. of Cities.	Rate per 10,000.	No. of Cities.	Rate per 10,000.
1876	3	3.48	3	2.02	3	4.45	3	0.63
1877	4	4.95	4	1.60	4	8.08	4	0.40
1878	4	4.98	4	2.73	4	6.72	4	0.68
1879	4	4.67	4	3.18	4	6.18	4	0.88
1880	4	5.31	4	2.96	4	6.18	3	1.13
1881	6	4.95	6	3.52	5	6.11	4	0.96
1882	6	5.62	6	2.66	5	6.16	5	1.30
1883	7	4.51	7	3.52	7	5.66	5	1.30
1884	7	5.43	7	3.44	7	5.96	6	1.06
1885	8	5.59	8	3.10	8	6.98	7	1.43
1886	8	5.29	8	3.17	8	6.67	7	1.08
1887	9	4.74	8	2.86	8	6.84	8	1.24
1888	9	4.73	9	3.43	9	5.83	7	1.18
1889	10	5.15	10	3.16	10	6.64	10	1.26
1890	10	5.79	10	3.51	10	7.79	10	1.35
1891	11	5.00	11	4.01	11	7.18	10	1.70
1892	11	5.26	11	4.11	11	7.19	11	1.68
1893	11	5.66	11	3.29	11	7.62	11	1.91
1894	11	5.18	11	3.77	11	7.00	11	1.95
1895	9	5.71	9	3.48	8	8.24	8	1.83
1896	11	5.35	11	3.05	10	8.01	10	1.87
1897	10	5.91	10	2.34	9	7.84	9	1.73
1898	10	5.47	10	3.05	10	6.91	10	1.36
1899	8	5.86	8	2.96	8	7.51	8	1.29
1900	9	6.19	9	3.26	9	7.64	8	1.27

In Tables X, XI and XII are given the average rates of Tables VIII and IX and of children's diseases for five-year periods:

TABLE X.

DEATH-RATE PER 10,000 OF POPULATION FROM VARIOUS CAUSES AFFECTING CHIEFLY ADULT LIVES.

1871–1900, by Five-Year Periods.

NORTHERN CITIES.

Years.	Typhoid Fever.	Phthisis.	Pneumonia.	Bronchitis.
	Rate per 10,000.	Rate per 10,000.	Rate per 10,000.	Rate per 10,000.
1871–75	5.01	31.74	16.42	5.93
1876–80	3.87	29.90	15.30	6.56
1881–85	5.36	30.75	18.00	7.84
1886–90	4.73	26.69	18.51	8.52
1891–95	4.28	22.91	22.24	8.66
1896–00	3.03	20.00	20.20	6.20
	Heart Diseases.	Apoplexy.	Urinary Diseases.	Liver Diseases.
1871–75	8.31	3.52	7.82	3.22
1876–80	8.50	3.26	8.34	2.81
1881–85	10.84	4.08	10.71	3.06
1886–90	11.75	4.53	10.26	2.90
1891–95	12.77	5.23	10.37	2.61
1896–00	12.32	5.66	11.49	2.51
	Cancer.	Paralysis.	Accidents.	Suicide.
1871–75	3.67	1.93	7.97	1.10
1876–80	4.67	2.10	6.58	1.21
1881–85	5.14	2.57	7.39	1.31
1886–90	5.00	2.44	7.85	1.31
1891–95	5.42	2.15	8.69	1.54
1896–00	5.84	1.56	7.93	1.71

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TABLE XI.

DEATH-RATE PER 10,000 OF POPULATION FROM VARIOUS CAUSES AFFECTING CHIEFLY ADULT LIVES.

1876–1900, by Five-Year Periods.

Southern Cities (White).

Years.	Typhoid Fever.	Phthisis.	Pneumonia.	Bronchitis.
	Rate per 10,000.	Rate per 10,000.	Rate per 10,000.	Rate per 10,000.
1876–80	4.92	30.16	11.70	3.72
1881–85	5.09	29.06	10.80	3.83
1886–90	5.51	23.99	10.66	4.34
1891–95	5.69	20.86	12.11	4.97
1896–00	4.90	18.38	12.91	3.72
	Heart Diseases.	Apoplexy.	Urinary Diseases.	Liver Diseases.
1876–80	8.26	5.02	4.79	4.32
1881–85	9.99	5.21	5.54	4.83
1886–90	11.59	5.33	7.07	4.04
1891–95	12.86	6.42	9.07	4.19
1896–00	13.47	6.89	11.58	3.71
	Cancer.	Paralysis.	Accidents.	Suicide.
1876–80	4.68	2.50	6.32	0.74
1881–85	5.22	3.25	6.17	1.21
1886–90	5.15	3.23	6.75	1.22
1891–95	5.36	3.73	7.45	1.81
1896–00	5.76	2.93	7.58	1.50

TABLE XII.

DEATH-RATE PER 10,000 OF POPULATION FROM VARIOUS CAUSES AFFECTING CHILDREN'S LIVES ALMOST EXCLUSIVELY.

1871–1900, by Five-Year Periods.

New York, Philadelphia, Boston, Newark, Jersey City.

Years.	Scarlet Fever.	Measles.	Whooping Cough.	Diphtheria and Croup.	Diarrhœal Diseases of Children.
1871–75	7.8	2.2	2.9	12.5	23.6
1876–80	6.9	1.8	2.7	13.6	17.5
1881–85	7.3	3.3	2.4	15.9	19.9
1886–90	3.8	2.7	2.3	13.5	17.4
1891–95	3.9	2.3	1.9	12.5	17.1
1896–00	2.1	2.2	2.0	9.3	14.5

Tables XIII, XIV and XV still further condense the results of Tables VIII and XII by giving the averages for ten-year periods for VIII and XII, and for one five-year period and two ten-year periods for IX:

TABLE XIII.

DEATH-RATE PER 10,000 OF POPULATION FROM VARIOUS CAUSES AFFECTING CHIEFLY ADULT LIVES.

1871–1900, by Ten-Year Periods.

Northern Cities.

Years.	Typhoid Fever.	Phthisis.	Pneumonia.	Bronchitis.
	Rate per 10,000.	Rate per 10,000.	Rate per 10,000.	Rate per 10,000.
1871–80	4.44	30.82	15.87	6.24
1881–90	5.05	28.72	18.25	8.18
1891–00	3.66	21.46	21.23	7.43
	Heart Diseases.	Apoplexy.	Urinary Diseases.	Liver Diseases.
1871–80	8.40	3.39	8.08	3.01
1881–90	11.30	4.30	10.48	2.98
1891–00	12.55	5.44	10.92	2.56
	Cancer.	Paralysis.	Accidents.	Suicide.
1871–80	4.17	2.01	7.27	1.15
1881–90	5.07	2.51	7.62	1.31
1891–00	5.63	1.86	8.31	1.63

TABLE XIV.

DEATH-RATE PER 10,000 OF POPULATION FROM VARIOUS CAUSES AFFECTING CHIEFLY ADULT LIVES.

1876–1900, by one Five and two Ten-Year Periods.

Southern Cities.

Years.	Typhoid Fever.	Phthisis.	Pneumonia.	Bronchitis.
	Rate per 10,000.	Rate per 10,000.	Rate per 10,000.	Rate per 10,000.
1876–80	4.92	30.16	11.70	3.72
1881–90	5.30	26.53	10.73	4.08
1891–00	5.30	19.62	12.51	4.35
	Heart Diseases.	Apoplexy.	Urinary Diseases.	Liver Diseases.
1876–80	8.26	5.02	4.79	4.32
1881–90	10.79	5.27	6.39	4.44
1881–00	13.17	6.65	10.33	3.95
	Cancer.	Paralysis.	Accidents.	Suicide.
1876–80	4.68	2.50	6.32	0.74
1881–90	5.18	3.24	6.46	1.22
1891–00	5.56	3.33	7.51	1.66

TABLE XV.

DEATH-RATE PER 10,000 OF POPULATION FROM VARIOUS CAUSES AFFECTING CHILDREN'S LIVES ALMOST EXCLUSIVELY.

1871–1900, by Ten-Year Periods.

New York, Philadelphia, Boston, Newark, Jersey City.

Years.	Scarlet Fever.	Measles.	Whooping Cough.	Diphtheria and Croup.	Diarrhœal Diseases of Children.
1871–80.....	7.3	2.0	2.8	13.1	20.5
1881–90.....	5.5	3.0	2.4	14.6	18.6
1891–00.....	2.9	2.2	2.0	10.8	15·8

It will be noticed that in Tables XII and XV, which give information concerning diseases of childhood, no account is taken of deaths above age 14. This is due to the fact that the data had already been prepared for another purpose and it would have entailed considerable extra labor to have used higher ages. As the number of deaths above age 14 from these causes is relatively insignificant, our tables are entirely sufficient for the purpose for which we are using them; namely, to ascertain the tendency toward increase or decrease.

It has not been possible to analyse these results by age groups. We can, therefore, draw from them only the most general conclusions. As regards the causes of death chiefly affecting adults, we find both in northern and southern cities that there has been a remarkable decrease in the death-rate from phthisis. This decrease may be partially accounted for by the fact that some cases diagnosed formerly as phthisis are now classified differently, especially as bronchitis and pneumonia, and the increase in the rate from pneumonia and the very slight increase from bronchitis may bear out this theory to some extent. Even so, with an apparent decrease of more than one-third in the death-rate from phthisis there must have been a decided actual decrease.

The death-rate for typhoid fever has decreased somewhat in northern cities and increased slightly in southern cities. The combined rate would probably show a slight decrease. Liver diseases have decreased slightly in the north, but show no change in the south. Paralysis also has decreased very slightly in the north and increased considerably in the south. All of the other causes of death given in our tables affecting chiefly adult lives show large increases, amounting to almost 50% on the average.

In other words, in the absence of more complete data we may conclude from the evidence available that during the last thirty years our urban population has experienced a rapidly decreasing death-rate from phthisis, but that at the same time there has been a decided increase in the rate from diseases of the heart, kidneys and lungs, from cancer and from violence. Among children, on the other hand, the mortality from all the diseases named, except measles, has greatly diminished.

On the assumption that the general tendency of the rate of mortality of our urban population has been the same as that of the whole country, it may be concluded from the data presented in these pages that the gross death-rate was lower at the end than at the beginning of the nineteenth century; that there was a decided decline in the rate during the last fifty years; that the greatest decline was at the youngest ages; that there was a considerable decline in the rate at the so-called producing

ages of life; and that there was an increase in the death-rate at the older ages, the increase being greatest at the most advanced periods of life.

I wish to acknowledge the assistance I have had from Mr. Frederick L. Hoffman, Statistician of the Prudential Insurance Company of America, in preparing this paper. From him I have secured all the original data, together with valuable suggestions.

As stated at the outset, the lack of trustworthy data for the country at large makes it impossible to reason with accuracy as to the probable increase in the longevity of the entire population of the United States. The problem of American longevity is complicated and made especially difficult by the immense tide of immigration flowing continuously into and over our land. I have secured, however, practically all the useful data available as to the death-rate of our principal cities. The combined population of American cities containing more than eight thousand inhabitants is about twenty-five millions, and of these almost nine millions are included in the final years of the first table. The number of lives considered in the second set of tables (IV–VII) is somewhat greater, while the tables for diseases in northern cities include for the later years about fifty cities.

As far as I know, the data here presented have not heretofore been brought together in a convenient and consolidated form, and while they may not furnish sufficient information to determine accurately the problem of longevity in the United States, they will, I hope, at least serve a useful purpose as a contribution toward a more comprehensive inquiry to be made at some future time.

RÉSUMÉ

LA PROLONGATION DE LA VIE AUX ÉTATS UNIS DANS LE DIX-NEUVIEME SIÈCLE.

Par John K. Gore.

Les rapports du Recensement des États Unis étant démontrés inexacts en ce qui concerne l'énumération des décès on cherche la tendance du taux de mortalité d'abord, d'après une table qui donne le taux brut de mortalité dans un nombre des plus grandes villes américaines pour chaque année de 1804 à 1901 inclus. Cette table et deux autres tables qui en sont dérivées montrent que la mortalité a apparemment augmenté dans ces villes jusqu'au troisième quart du dix-neuvième siècle pour diminuer régulièrement ensuite.

Les tables suivantes montrent le taux corrigé de la mortalité dans un plus grand nombre de villes pendant la seconde moitié du siècle par périodes de cinq ans, ainsi que la mortalité durant ces périodes par groupements d'âge suivants: Moins d'un an; de 1 à 4 ans; 5 à 9; 10 à 19; 20 à 29; 30 à 39; 40 à 49; 50 à 59; 60 à 69; 70 à 79; au dessus de 80. On voit par ces tables que le taux brut corrigé de mortalité a décliné considérablement durant la seconde moitié du siècle, et les groupements d'âge montrent les résultats généraux suivants: une baisse très forte dans le taux de la mortalité aux jeunes âges, une forte baisse aux âges au dessous de cinq ans, une baisse considérable à tous les âges jusqu'à 50 ans, une augmentation dans le taux aux âges avancés, l'augmentation devenant plus considérable à mesure que l'âge avance.

Le troisième ensemble de tables montre l'augmentation ou la diminution dans le taux de la mortalité due aux causes les plus importantes de décès, les causes qui affectent principalement la vie des adultes étant séparées de celles qui affectent l'enfance. Les résultats pour les causes de décès parmi les adultes sont donnés séparément pour les villes du Nord et du Sud; 50 villes du Nord environ étant comprises dans les dernières années. Une diminution prononcée de mortalité due à la phtisie s'est produite, tandis que la mortalité due aux maladies de poumons, de cœur et de rognon, aux cancers et aux voies de fait a beaucoup augmenté. Les tables montrent aussi une diminution marquée dans le taux de mortalité due aux maladies suivantes de l'enfance: fièvre scarlatine, coqueluche, diphtérie, croup et diarrhées. Les tables employées comprennent pour les dernières années plus de 9 millions sur les 25 millions de personnes qui habitent actuellement dans des villes de plus de huit mille habi-

tants. La tendance que montrent ces tables peut, par conséquent, être supposée représenter la tendance pour l'entière population urbaine du pays, et comme on ne peut obtenir de données pour la campagne, ces tables peuvent être aussi acceptées comme indiquant probablement le taux de la mortalité pour la population entière.

On en tire les conclusions suivantes: La longueur moyenne de vie de la population à la fin du dix-neuvième siècle était plus grande qu'au commencement du siècle. Il s'est produit une diminution marquée dans le taux brut des décès pendant la dernière moitié du siècle. Cette diminution était la plus grande aux jeunes âges de vie et se continuait durant les âges dits productifs. Aux âges au dessus de 50 ans, spécialement aux âges avancés, il s'est produit une augmentation du taux de la mortalité.

L'auteur croit que ces données n'ont pas été jusqu'à présent réunies sous cette forme et espère que cet article pourra servir de base dans l'avenir à des recherches plus complètes de cette nature.

KURZE NOTIZ

ÜBER DIE VERLÄNGERUNG DER LEBENSDAUER IN DEN VEREINIGTEN STAATEN WÄHREND DES NEUNZEHNTEN JAHRHUNDERTS.

Von John K. Gore.

Da die Berichte des Census der Vereinigten Staaten bezüglich der Aufzählung von Todesfällen sich als unzuverlässig erwiesen haben, wird die Tendenz der Todesfälle zuerst von einer Tabelle erforscht, welche die blosse Sterblichkeitsrate einer Anzahl grösserer amerikanischer Städte für jedes Jahr von 1804 bis 1901 einschliesslich angiebt. Diese Tabelle und zwei andere davon abgeleitet, zeigen, dass die Rate der Todesfälle dieser Städte sich augenscheinlich bis zum dritten Viertel des neunzehnten Jahrhunderts gesteigert hat, darauf aber stetig abnahm.

Ein weiterer Satz von Tabellen weist die corrigierte Rate von Todesfällen einer grösseren Zahl von Städten für die zweite Hälfte des Jahrhunderts in 5 jährlichen Perioden auf, sowie die Rate von Todesfällen in diesen Perioden je nach den folgenden Alters-Gruppen: Unter 1 Jahr, Alter 1-4 Jahr, 5-9, 10-19, 20-29, 30-39, 40-49, 50-59, 60-69, 70-79, 80 und darüber. Von diesen Tabellen geht hervor, dass die verbesserte Brutto-Rate von Todesfällen während der letzten Hälfte des Jahrhunderts beträchtlich gefallen ist, und folgende Resultate sind in Altersgruppen angegeben: Ein starkes Fallen der Rate von Todesfällen während des jüngsten Lebensalters, ein starkes Fallen des Alters unter 5 Jahren, ein weiteres bedeutendes Fallen der Rate der Todesfälle in allen Altersstufen bis zu 50 Jahren hinauf, und eine Vermehrung der Rate in späteren Lebensaltern; die Vermehrung ist die grösste je grösser das Lebensalter.

Eine dritte Klasse von Tabellen beweist die Vermehrung oder Verminderung in der Sterbe-Rate infolge der wichtigeren Todes-Ursachen an, bei welcher Gelegenheit die Ursachen, welche bei erwachsenen Personen eintreten, von denen unterschieden werden, die bei Kindern in Frage kommen. Die Resultate der Todes-Ursachen für erwachsene Personen sind für nördliche und südliche Städte separat angegeben, wobei ungefähr 50 nördliche Städte in den letzten Jahren eingeschlossen sind. Eine thatsächliche Verminderung ist, wie bewiesen wird, in Todesfällen von Schwindsucht eingetreten, während eine bedeutende Vermehrung der Todesfälle von Lungenkrankheiten, Herz- und Nieren-Gebrechen, Krebs und gewaltthätigem Tode stattfand. Die Tabellen zeigen weiterhin eine ausgesprochene Verminderung der Sterblichkeitsrate bei folgenden Kinderkrankheiten: Scharlach-Fieber, Keuchhusten, Diphtheritis, Bräune und Durchfall.

Von den 25 Millionen Menschen, welche in Städten mit mehr als 8000 Einwohnern leben, werden in den Tabellen für die letzteren Jahre mehr als 9 Millionen eingeschlossen. Die auf diese Weise in den Tabellen bewiesene Tendenz mag deshalb als Darstellung der Tendenz für die gesammte Städte-Bevölkerung des Landes angesehen werden, und da keine besonderen Daten für die Landbevölkerung im Grossen und Ganzen zu haben sind, können sie auch als wahrscheinliche Tendenz der Sterbe-Rate der gesammten Bevölkerung angenommen werden.

Die Schlussfolgerungen hieraus sind: Die durchschnittliche Lebensdauer der Bevölkerung am Ende des neunzehnten Jahrhunderts war grösser, als die der Bevölkerung beim Beginne des Jahrhunderts. Es ergiebt sich eine unbedingte Verminderung der Brutto-Todesrate während der letzten Hälfte des Jahrhunderts. Diese Verminderung war am grössten bei jungem Lebensalter und dauerte fort während der sogenannten Erzeugungs-Jahre. Im Alter von über 50, besonders aber in den höchsten Alters-Stufen, ergab sich eine Vermehrung der Sterbe-Rate.

Der Verfasser glaubt, dass diese Daten bisher in solcher Form noch nicht aufgeführt worden sind und hofft, dass dieser Bericht die Grundlage durchgriefenderer Untersuchungen derselben Natur in der Zukunft sein möge.

WAR RISKS, WITH SPECIAL REFERENCE TO THE WAR IN SOUTH AFRICA, 1899–1902.

By Frederick Schooling, F.I.A.,

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War Risks must necessarily differ in different countries, in accordance with the laws regulating military service in each particular country. This fact makes any world wide system of war risk premiums an impossibility. It has been pointed out by many writers that countries where conscription is the custom must be treated on different lines to countries where a comparatively small standing army is kept up; and again, that in those countries where the whole able-bodied population are liable for military service, the risk for those who adopt the army as a profession is altogether different from those who merely serve the prescribed years of service. The modern idea of charging a small permanent extra premium, or a small premium until leaving the service, can be made to fit in with either of these classes of risk, but there is another class of risk brought into prominence during the war between the United States and Spain, and also in the more recent war in South Africa, which cannot be met by any permanent extra premium. This is the risk incurred in the case of Volunteers for active service, and it is hoped that the present paper may be of use in helping to find out what this risk is, for the writer was fortunately able to follow accurately the experience of about twenty thousand Imperial Yeomanry and Volunteers who were assured lives engaged in the recent struggle in South Africa.

Before going into the details of this experience it will be as well to very briefly summarise what has been written on the subject by other writers. Perhaps the most valuable contribution on the subject is Messrs. Smee and Ackland's paper. This was first published in pamphlet form, and afterwards reprinted in the Journal of the Institute of Actuaries, London, volume 34. Messrs. Smee and Ackland arrive at the conclusion based on campaigns extending over one hundred years that the average death-rate of the army in the field is about five per cent. per annum, but they make a special note to the effect that the death-rate during the American Civil War was seven per cent.

Another valuable contribution to the subject is that made by Herr Klang, and we here append a Table in which he gives the death-rate experienced in different European campaigns:

RATES OF WAR MORTALITY IN DIFFERENT EUROPEAN CAMPAIGNS, 1874–1878 (HERR KLANG).

Campaign and Date.	Rate of Mortality.
France in the Crimea, 1854–55	.103
France in Campaign of 1859	.056
Italy "	.055
Austria "	.047
North American Army, 1861–65	.054
Prussia in Campaign of 1864	.033
Austria "	.040
Italy " 1866	.040
Prussia "	.034
Bavaria "	.051
Austria "	.056
Germany " 1870–71	.042
Austria " 1878 (occupation of Bosnia-Herzegovina)	.015
General Average	.048

Mr. A. G. Mackenzie, in his paper published in the Transactions of the Actuarial Society of Edinboro in 1881, gives a somewhat similar table, which is here reproduced.

COMPARATIVE LOSSES FROM BATTLE AND DISEASE (MACKENZIE).

	Losses per 100 from Battle.	Proportion of Total Losses from Battle.	Losses per 100 from Disease.	Proportion of Total Losses from Disease.	Total Losses per 100.
Crimean War:					
English per annum	3.3	.262	9.3	.738	12.6
French "	3.4	.219	12.1	.781	15.5
American War:					
North, 1st year	1.7	.254	5.0	.746	6.7
North, 4 years	3.9	.345	7.4	.645	11.2
Austro-Prussian War, 1866:					
Prussian Losses, 7 weeks	1.4	.438	1.8	.562	3.2

In the transactions of the second International Actuarial Congress will be found an abstract of the Tables from the paper contributed by Mr. McLoughlin on general Naval and Military statistics, dealing principally with the ten years 1886–95. As these tables have already appeared in the Transactions, there is no need to again reproduce them. One of the earliest papers on the subject, or rather series of papers, were Mr. W. B. Hodge's, which gave statistics ending with the Crimean War, and were published in the Journal of the Institute of Actuaries, volume 7, pages 80, 151, 201 and 275.

A very recent contribution to the subject was Mr. A. T. Anderson's paper entitled "The Rate of Mortality in the South African War," which was read before the Actuarial Society of New South Wales on the 9th September, 1902. He arrives at the conclusion that an extra premium of five per cent. per annum for Officers and £2.10/- for Non-commissioned Officers and Men would have met the case. Besides these British contributions towards war statistics, there have been many valuable treatises on the subject from the pens of others. Herr Klang has been already mentioned, and we certainly ought to include the paper dealing with

the War of 1870 and 1871 by Dr. Engel, which was published in Berlin in 1871–2, and also the paper published in Berlin by Professor Kerup. To these should be added the numerous contributions by distinguished French writers made from time to time in the columns of the "Moniteur des Assurances" and "Journal des Assurances."

In the paper by Mr. Rusher and myself read before the Institute of Actuaries on the 30th March of this year, entitled "The Mortality Experience of the Imperial Forces during the War in South Africa 11 October, 1899, to 31 May, 1902," we were fortunate enough to receive the active help of the English War Office Authorities, who readily filled in particulars on schedules prepared by us, and gave us access to all returns and books from which the official returns were made up. As an evidence of the care with which these returns were compiled, it may be mentioned that the final total under the heading of missing and prisoners for the whole period of the war was only 105. Thus we were relieved from a difficulty which previous investigators had found a very great one, that is, the difficulty of knowing what to do with the large number of men unaccounted for.

We, however, did not trust to War Office Returns alone, for the deaths were ascertained from three independent sources: (a) A register wherein all deaths were recorded in official lists supplied to the "Times" newspaper, were tabulated daily from the commencement of the war, a folio being opened for each regiment or distinct corps, the cause of death being stated in each case. (b) The printed list of casualties during the war supplied by the South African Authorities to the War Office. (c) The manuscript comprised in ten thick volumes belonging to the War Office. A card was written for each of the 21,945 deaths observed; upon each card was recorded the regimental number, name, regiment, whether commissioned officer or not, date of death, and cause of death. Deaths from wounds or on the battlefield were throughout distinguished from those from other causes, the word "wound" being employed to denote those from wounds or on the battlefield, and "illness" those from other causes.

It will be readily understood by those who have had any experience in compiling statistics that the comparison of the same details recorded by three altogether independent methods must necessarily produce many points for investigation and be extremely laborious. It, however, ensured a degree of accuracy which would have been impossible if figures taken from official returns had been alone relied upon. The following Schedules give the strength of the forces in South Africa during the progress of the War:

SCHEDULE A.

STRENGTH OF FORCES IN SOUTH AFRICA.

	Regular & Volunteers.		Militia.		Imperial Yeomanry.		C. I. Volunteers.	
	Officers.	N.C.O's and Men.	Officers.	N. C. O's and Men.	Officers.	N. C. O's and Men.	Officers.	N. C. O's and Men.
11 Oct. 1899 .	.....	.....	.....	.....	.....	.....	.....	.....
1 November .	1,869	53,234	.....	.....	.....	.....	.....	.....
1 December..	2,764	81,252	.....	.....	.....	.....	.....	.....
1 Jan., 1900..	3,218	100,111	.....	.....	.....	.....	.....	.....
1 February...	3,714	117,597	181	4,900	84	1,426	56	1,519
1 March	3,971	134,585	603	14,480	284	5,006	56	1,519
1 April	4,387	152,148	753	18,209	417	7,786	56	1,517
1 May	4,478	156,763	745	18,778	521	10,115	56	1,512
1 June.....	4,636	159,429	765	19,145	522	10,122	56	1,513
1 July	4,586	163,835	770	19,266	523	10,175	56	1,500
1 August....	4,619	158,241	760	19,790	523	10,125	55	1,436
1 September.	4,642	155,422	751	19,477	526	10,096	55	1,421
1 October ...	4,732	155,685	745	20,079	526	9,470	55	1,464
1 November .	4,715	155,472	725	19,708	516	9.027	.....	.....
1 December..	4,574	153,692	730	19,312	530	8,891	.....	.....
1 Jan.,1901...	4,551	149,801	725	19,081	530	8,024	.....	.....
1 February...	4,550	149,618	715	18,988	530	7,882	.....	.....
1 March	4,579	150,047	700	18,402	571	10,565	.....	.....
1 April.....	4,659	154,824	732	19,367	845	21,982	.....	.....
1 May	4,746	148,440	779	19,726	960	23,376	.....	.....
1 June.....	4,793	145,597	740	17,900	876	20,349	.....	.....
1 July	4,795	143,422	837	20,734	813	18,603	.....	.....
1 August....	4,801	140,711	727	17,300	793	17,955	.....	.....
1 September.	4,788	141,681	711	17,003	783	17,330	.....	.....
1 October ...	4,829	140,492	693	16,452	773	16,962	.....	.....
1 November .	4,750	138,426	665	15,932	773	16,125	.....	.....
1 December..	4,757	139,761	658	15,728	773	15,758	.....	.....
1 Jan. 1902...	4,876	144,581	764	19,550	780	15,149	.....	.....
1 February...	4,869	144,020	814	22,010	630	14,170	.....	.....
1 March	4,870	146,475	790	21,437	640	14,372	.....	.....
1 April	4,845	144,640	966	23,840	640	13,720	.....	.....
1 May	4,916	146,643	886	22,276	700	14,733	.....	.....
1 June.....	4,867	146,046	771	20,156	1,000	19,117	.....	.....

SCHEDULE B.

APPROXIMATE STATEMENT SHOWING STRENGTH OF COLONIAL FORCES OF ALL KINDS IN SOUTH AFRICA ON THE DATE STATED.

Date.	Colonials.	South African Constabulary.
1 December, 1899	15,278	.....
1 January, 1900	18,762	.....
1 February	22,796	.....
1 March	26,069	.....
1 April	26,944	.....
1 May	31,037	.....
1 June	33,512	.....
1 July	35,747	.....
1 August	43,150	.....
1 September	42,775	.....
1 October	42,097	.....
1 November	42,097	.....
1 December	39,302	.....
1 January, 1901	30,306	.....
1 February	29,450	.....
1 March	52,995*	1,467
1 April	54,852	5,634
1 May	56,086	5,234
1 June	54,909	7,401
1 July	54,159	7,430
1 August	53,625	7,461
1 September	52,912	7,516
1 October	51,952	8,743
1 November	51,527	9,117
1 December	51,448	8,883
1 January, 1902	49,398	9,116
1 February	46,560	8,935
1 March	47,113	9,081
1 April	48,803	9,316
1 May	48,386	9,364
1 June	45,646	9,372

In cases where the figures on 1st of the month are not available, those for the nearest approximate date are given.

* Includes 10,000 men raised in February locally by General Brabant, and additional oversea Colonials, i.e., Canada, New Zealand, &c.

It should be pointed out that the numbers here given do not include drafts on their way out or returning, but as the heading indicates, the strength of the forces in South Africa. Thus the period of risk was assumed to commence upon landing in South Africa, and to end upon leaving that country, and here we have an important difference between the investigation into the mortality amongst the Regulars and the Colonials, and the investigation of the mortality amongst the assured Volunteers, for there the risk was assumed to commence on their joining the ranks of the Volunteers, and to end on their discharge from active service.

Throughout the investigation the Imperial forces were divided into three classes, the combined experience being also given. In each class the experience of the Officers was distinguished from the N. C. O's and men, and the following table gives summaries for each sub-division for the whole duration of the war:

TABLE GIVING THE COMPARISON OF THE TOTALS FOR ALL CLASSES FOR THE WHOLE DURATION OF THE WAR.

	Officers.								N. C. Officers and Men.							
	Months of Exposure to Risk.	Years of Exposure to Risk.	Deaths.			Death-rate per 1000 per annum.			Months of Exposure to Risk.	Years of Exposure to Risk.	Deaths.			Death-rate per 1000 per annum.		
			Wounds.	Illness.	Total.	Wounds.	Illness.	Total.			Wounds.	Illness.	Total,	Wounds.	Illness.	Total.
Regulars and Volunteers..	161,604	13,467	454	277	731	33.712	20.569	54.281	4,980,325	415,027	4,811	11,317	16,128	11.592	27.268	38.860
Yeomanry....	17,844	1,487	73	30	103	49.092	20.175	69.267	368,187	30,682	637	1,042	1,679	20.761	33.961	54.722
Colonials.....	53,747	4,479	135	64	199	30.141	14.289	44.430	1,215,484	101,290	1,424	1,652	3,076	15.059	16.310	30.369
Total (all classes).....	233,195	19,433	662	371	1,033	34.066	19.091	53.157	6,563,996	546,999	6,872	14,011	20,883	12.563	25.614	38.177
Total Officers and Men (all classes).....	6,797,191	566,432	7,534	14,382	21,916	13.301	25.391	38.692								

Several interesting points are brought into prominence by this table. In the first place it is shown very clearly that the Officers experienced a considerably higher death-rate from wounds throughout the whole of the war than the N. C. O's and men. If we take the deaths from other causes exactly the opposite is found to obtain. These results fit in with general expectation, and are features not only of the recent war but of war statistics generally. It being a well recognised fact that Officers are marked men on the battlefield, while it is probable that as a body they are men of better stamina than the rank and file, and perhaps are better cared for when ill. Another noticeable point is the heavy death rate from wounds among the Imperial Yeomanry. The reason for this is probably due to their being mounted men and from the fact that from the time they went out, February, 1900, the war was of such a nature as to keep this arm of the service continually employed in the most arduous duties, and calling them constantly to positions of danger in almost every action of importance. Had statistics been available a comparison between the death-rates of cavalry as distinguished from other branches of the regulars, with the Yeomanry, would have been interesting.

The annual death-rates practically give the annual premium per £100 assured according to the war experience, including the risk from death from normal mortality, and make allowance for the return of a portion of the premium for any unexpired fraction of a year. They fell considerably below the rates deduced from the mortality of the German Army during the Franco-German War, and compare even more favourably with the death-rates experienced by the Northern Army during the American Civil War. These rates represent the premium for the period of the war only, and cannot be said to represent the correct extra premium for existing policies at the commencement of the war, or for a new policy to be continued after the expiration of the war; they are, in fact, the term premium for the temporary assurance. It is true the rates cover the risk of death from normal mortality, and they do not take into account the probability of deterioration through wounds or disease contracted during the campaign. What the value of this liability to deterioration is it is impossible to say, but no doubt it is very considerable.

The two following Tables, exhibiting the death-rates for different periods of the war, will be found interesting:

COMPARISON OF DEATH-RATES FOR VARIOUS PERIODS OF THE WAR.

REGULARS, &c.

	Officers.								N. C. Officers and Men.							
	Months of Exposure.	Years of Exposure.	Deaths.			Yearly Death-Rate per 1000.			Months of Exposure.	Years of Exposure.	Deaths.			Yearly Death-Rate per 1000.		
			Wounds.	Illness.	Total.	Wounds.	Illness.	Total.			Wounds.	Illness.	Total.	Wounds.	Illness.	Total.
11 Oct., '99, to 30 Sept., '00 .	51,399	4,283	256	119	375	59.771	27.784	87.555	1,665,519	138,793	2,895	5,303	8,198	20.858	38 208	59.066
1 Oct., '00, to 30 Sept., '01..	65,199	5,433	99	91	190	18.222	16,749	34.971	2,007,913	167,326	1,297	3,696	4,993	7.751	22.089	29'840
1 Oct., '01, to 31 May, '02 ..	45,006	3,751	99	67	166	26.393	17.862	44.255	1,306,893	108,908	619	2,318	2,937	5.684	21.284	26.968
	161,604	13,467	454	277	731	33.712	20.569	54.281	4,980,325	415,027	4,811	11,317	16,128	11.592	27.268	38.860
YEOMANRY.																
1 Feb., '00, to 31 Jan., '01..	5.727	477	17	7	24	35.639	14.675	50.314	103,494	8,625	182	328	510	21.101	38.028	59.130
1 Feb., '01, to 31 Jan., '02..	9,322	777	47	14	61	60.489	18.018	78.507	205,184	17,098	352	507	859	20.587	29.652	50,239
1 Feb., '02, to 31 May, '02..	2,795	233	9	9	18	38.627	38.627	77.254	59,509	4,959	103	207	310	20.770	41.742	62,512
	17,844	1,487	73	30	103	49.092	20.175	69,267	368,187	30,682	637	1,042	1,679	20.761	33,961	54.722
COLONIALS.																
1 Dec., '99, to 30 Nov., '00 ...	16,610	1,384	61	19	80	44.075	13.728	57.803	375,665	31,305	554	538	1,092	17.697	17.186	34.883
1 Dec., '00, to 30 Nov., '01...	24,906	2,076	62	29	91	29.865	13.969	43,834	563,243	46,937	629	676	1,305	13 401	14.402	27.803
1 Dec., '01, to 31 May, '02...	12,231	1,019	12	16	28	11,776	15.702	27,478	276,576	23,048	241	438	679	10.456	19.004	29.460
	53,747	4,479	135	64	199	30,141	14,289	44,430	1,215,484	101,290	1,424	1.652	3,076	14.059	16,310	30.369

COMPARISON OF DEATH-RATES AMONGST THE VARIOUS CLASSES FOR DIFFERENT PERIODS OF THE WAR.

1 February, 1900, to 31 January, 1901.

	Officers.								N. C. Officers and Men.							
	Months of Exposure.	Years of Exposure.	Deaths.			Yearly Death-Rate per 1000.			Months of Exposure.	Years of Exposure.	Deaths.			Yearly Death-Rate per 1000.		
			Wounds.	Illness.	Total.	Wounds.	Illness.	Total.			Wounds.	Illness.	Total.	Wounds.	Illness.	Total.
Regulars, &c..	63,016	5,252	191	148	339	36.367	28.180	64.547	2,060,560	171,713	2,223	6,333	8,556	12.946	36.881	49.827
Yeomanry....	5,727	477	17	7	24	35.639	14,675	50.314	103,494	8,625	182	328	510	21.102	38.028	59.130
Colonials.....	17,749	1,479	70	24	94	47.329	16,227	63·556	401,410	33,451	584	639	1,223	17.458	19.103	36.561
	86,492	7,208	278	179	457	39.568	24;834	63.402	2,565,464	213,789	2,989	7,300	10,289	13.981	34.146	48.127
1 February, 1901, to 31 January, 1902.																
Regulars, &c..	65,853	5,487	110	77	187	20.047	14.033	34.080	1,953,395	162,783	1,107	3,371	4,478	6.800	20.709	27.509
Yeomanry....	9,322	777	47	14	61	60.489	18.018	78.507	205,184	17,098	352	507	859	20.587	29.652	50,239
Colonials.....	26,334	2,195	53	28	81	24.146	12.756	36.902	595,533	49,628	603	714	1,317	12.150	14.387	26,537
	101,509	8,459	210	119	329	24.826	14.068	38.894	2,754,112	229,509	2,062	4,592	6,654	8.984	20.008	28.992
1 February, 1902, to 31 May, 1902.																
Regulars, &c..	22,934	1.911	43	45	88	22.501	23.548	46.049	671,428	55,952	277	1,192	1,469	4.951	21.304	26,255
Yeomanry....	2,795	233	9	9	18	38.627	38.627	77.254	59,509	4,959	103	207	310	20.770	41.742	62,512
Colonials	8,064	672	10	11	21	14.881	16.369	31.250	182,342	15,195	162	269	431	10.661	17.703	28.364
	33,793	2,816	62	65	127	22.017	23.082	45.099	913,279	76,106	542	1,668	2,210	7.122	21.917	29.039

It will be seen that the death-rates varied considerably at different periods of the war, the mortality among both Officers and men being very much heavier in the early stages of the war than in the latter. This was, no doubt, partly due to the fact that most of the heavy battles were fought during the first year of the war; it is probably also true that the men had not had time to become hardened to the climate and privations necessary to all campaigns, and perhaps the medical and hospital arrangements were in the early stages of the campaign of an incomplete nature. The importance of this feature of the war from an assurance point of view is at once apparent. Any premium calculated from the very large death-rate for the whole war might be misleading, for a policy-holder has the option of discontinuing his assurance at the end of the first year, but a glance at the above Tables will show that the average yearly premium for Officers of 5.3 per cent. would have been altogether too small for the first year's risk taken by itself. It may be noted that the death-rate for the first year of the war, obtained from the Officers of the combined forces, was 7.8 per cent., falling in the second year to 4.13, and remaining almost at the same rate for the third year, namely 4.24.

From an assurance point of view Officers and men must nearly always be kept apart, and to give premiums founded upon their combined experience is likely to lead Officers to imagine that a war risk can be covered by such premiums, and to be disappointed when they find out their mistake. The risk of death to Officers and men differs considerably, and it would only be possible from the point of view of an assurance company to charge the same extra premium for both, if the numbers of Officers and men effecting assurance were in the same proportion as exists between Officers and men in the whole Army, and if the average sum assured were the same for Officers as for men. It is difficult to imagine such a state of affairs existing in England, though it is perhaps possible in a country where conscription is to rule.

We now turn to the experience of the assured yeomanry and volunteers. Here a card was written for each of the 19,269 lives under observation, showing the policy number, the name, age at entry, date of entry, and duration. The summary of the facts dealt with was as follows:

Number of Policies		19,269
Of which there—		
Left Active Service, or otherwise passed from observation		12,515
Died from wounds	193	
Died from other causes	638	
		831
Existing in South Africa on 31 May, 1902, the end of period of observation		5,923
Total months of exposure to risk		256,450
Average duration		13.31 months.

This experience was followed in two distinct ways. The cards were first sorted into calendar months of the war, so as to compare with the figures given in the general mortality of the Imperial Forces, and then sorted into months of assurance for the purpose of obtaining monetary results, and of tracing the effects of continued exposure to the risks of war, in order to test whether the lives became hardened against disease as time passed. For the purpose of obtaining the Exposed to Risk the age was taken as age next birthday at entry; the date of entry was taken as the first day of the month in which the policy was issued. It was assumed that the date upon which active service commenced was the same as the date of entry. The period at which the lives passed from observation was affected

to two ways. In some few cases the policy was lapsed while the assured was still on active service. In these the date of lapse was assumed to be the date at which the days of grace expired. The other way in which lives passed from observation was by the life assured leaving active service while the policy still remained in force.

In this class some difficulty was experienced in determining the exact date upon which the risk ceased. The date obtained was in some instances that upon which the life assured arrived in England, and in others that upon which he left South Africa. It was assumed that all remained exposed until the end of the month, an assumption which considerably simplified the work of obtaining the exposed to risk.

The following table summarises these particulars for all months for each of the various groups of ages.

ASSURED YEOMANRY AND VOLUNTEERS.

SUMMARY IN CALENDAR MONTHS. ALL MONTHS.

(1)	Number of Policies Issued. (2)	Left Active Service or Otherwise Withdrew from Observation. (3)	Deaths. Wounds. (4)	Deaths. Illness. (5)	Sum of Columns (3), (4), (5). (6)	(2) - (6) for Preceding Month. (7)	Exposed to Risk. (8)
Ages 17–22	7,826	4,628	69	243	4,940	3,122	100,538
Ages 23–27	6,854	4,612	67	253	4,932	2,132	92,548
Ages 28–32	2,674	1,906	27	89	2,022	733	36,862
Ages 33–37	1,530	1,085	20	39	1,144	420	20,876
Ages 38–42	281	215	3	11	229	56	4,090
Ages 43–47	87	61	7	1	69	19	1,305
Ages 48 and upwards	17	8	..	2	10	7	231
Total.....	19,269	12,515	193	638	13,346	6,489	256,450

$$\frac{256,450}{19,269} = 13.31 = \text{Average duration in months.}$$

We here insert a Table dealing with the same facts, but in a different form, which brings out one or two very interesting points.

ASSURED YEOMANRY AND VOLUNTEERS

SUMMARY IN CALENDAR MONTHS. ALL AGES.

Month.	Months of Exposure to Risk.	Deaths.			Monthly Death-rate per 1000.		
		Wounds.	Illness.	Total.	Wounds.	Illness.	Total.
January, 1900....	100	.....	.....	.....	.....	.....	.....
February "	3,225	.....	3	3	.....	.930	.930
March "	6,785	.....	5	5	.....	.737	.737
April "	8,053	1	11	12	.124	1.366	1.490
May "	8,911	10	33	43	1.122	3.703	4.825
June "	9,146	7	47	54	.765	5.139	5.904
July "	9,214	11	29	40	1.194	3.147	4.341
August "	9,211	7	19	26	.760	2.063	2.823
September "	9,116	5	13	18	.548	1.426	1.974
October "	9,066	10	12	22	1.103	1.324	2.427
November "	8,941	7	17	24	.783	1.901	2.684
December "	8,630	6	33	39	.695	3.824	4.519
January, 1901....	8,458	4	31	35	.473	3.665	4.138
February "	9,570	7	29	36	.731	3.030	3.761
March "	13,922	7	25	32	.503	1.796	2.299
April "	14,173	3	32	35	.212	2.258	2.470
May "	13,702	8	47	55	.584	3.430	4.014
June "	11,535	8	29	37	.694	2.514	3.208
July "	10,117	7	17	24	.692	1.680	2.372
August "	9,499	3	9	12	.316	.947	1.263
September "	9,218	9	8	17	.976	.868	1.844
October "	9,060	16	3	19	1.766	.331	2.097
November "	8,860	5	14	19	.564	1.580	2.144
December "	8,736	13	42	55	1.488	4.808	6.296
January, 1902....	8,485	3	35	38	.354	4.125	4.479
February "	8,524	23	36	59	2.698	4.223	6.921
March "	8,568	9	39	48	1.050	4.552	5.602
April "	7,136	3	13	16	.420	1.822	2.242
May "	6,489	1	7	8	.154	1.079	1.233
Total.....	256,450	193	638	831	.753	2.488	3.241

It will be seen on comparing the death-rates of the assured Yeomanry and volunteers with those of the whole of the Yeomanry deduced from the official War Office returns that the rates of the former are considerably the lower. The reasons for this are, firstly, the different methods which were adopted in obtaining the time of exposure to risk. As already explained, all the official War Office returns assumed the period of risk to commence on landing in South Africa, and to end upon leaving that country. The assured lives on the other hand were assumed to commence their period of risk before sailing from the United Kingdom, and to end it on their return; thus a number of Yeomanry were assumed to be at risk who were kept at home for some months before sailing. It may be that for the purpose of the calculation of this particular class of war risk preminms that this way of looking at matters is more correct than the assumption that the lives are only at risk when at the seat of war. It certainly is if an extra premium is paid immediately a man is enrolled as a volunteer for active service. Another reason for the difference was the inclusion of volunteers for the ordinary line regiment with the Yeomanry in the assured investigation.

Although the large number were Yeomanry, yet the inclusion of volunteers undoubtedly tended to lower death-rate, for the latter were not placed in positions at the very front, but were for the most part

used for guarding the lines of communication and in manning the block-houses.

The following summary of facts gives the combined results for all months, and shows the totals for each age group, the Table being compiled from months of Assurances here called Policy months:

ASSURED YEOMANRY AND VOLUNTEERS.

SUMMARY.

Entered	(17–22)	7,826
"	(23–27)	6,854
"	(28–32)	2,674
"	(33–37)	1,530
"	(38–42)	281
"	(43–47)	87
"	(48 and upwards)	17
		19,269

POLICY MONTHS. ALL DURATIONS COMBINED.

Ages.	Existing.	Left Active Service or Otherwise Withdrew from Observation.	Deaths.			Col. (2). Col. (3).	Months of Exposure.	Monthly Death-Rate per 1000.		
			Wounds.	Illness.	Total.			Wounds.	Illness.	Total.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
17–22....	2,886	4,628	69	243	312	7.514	100,538	.686	2.417	3.103
23–27.....	1,922	4,612	67	253	320	6,534	92,548	.724	2.734	3.458
28–32....	652	1,906	27	89	116	2,558	36,862	.732	2.414	3.146
33–37....	386	1,085	20	39	59	1,471	20,876	.958	1.868	2.826
38–42.....	52	215	3	11	14	267	4,090	.733	2.689	3.422
43–47.....	18	61	7	1	8	79	1,305	5.364	.766	6.130
48 and upwards	7	8	..	2	2	15	231	..	8.658	8.658
	5,923	12,515	193	638	831	18,438	256,460	.753	2.488	3.241

If the rates for ages beyond age 42 are omitted where the facts are too few to enable us to draw any conclusions, we notice that the death-rate from wounds appears, as might be expected on the whole, to remain about the same for all ages, the tendency perhaps to slightly increase with the age. Looking at column 10 we see again that the age distribution has on the whole very little effect on death-rates from "illness."

The following Table shows the total for each policy month, combining all ages:

ASSURED YEOMANRY AND VOLUNTEERS.

SUMMARY : POLICY MONTHS. ALL AGES COMBINED.

Month of Exposure. (n)	E.	Deaths.			Monthly Death-rate per 1000.		
		Wounds.	Illness.	Total.	Wounds.	Illness.	Total.
(1)	(2)	(3)	(4	(5)	(6)	(7)	(8)
1	19,269	1	14	15	.052	.727	.779
2	19,053	2	25	27	.105	1.312	1.417
3	18,592	12	54	66	.645	2.904	3.549
4	17,643	17	60	77	.964	3.401	4.365
5	17,218	15	62	77	.871	3.601	4.472
6	16,998	13	33	46	.765	1.941	2.706
7	16,705	18	23	41	1.078	1.377	2.455
8	16,485	20	21	41	1.213	1.274	2.487
9	16,223	14	33	47	.863	2.034	2.897
10	15,881	10	64	74	.630	4.030	4.660
11	15,364	12	53	65	.781	3.450	4.231
12	15,007	19	67	86	1.266	4.465	5.731
13	14,450	18	47	65	1.246	3.253	4.499
14	9,468	7	27	34	.739	2.852	3.591
15	8,407	4	16	20	.476	1.903	2.379
16	4,692	.....	12	12	.....	2.558	2.558
17	2,559	3	4	7	1.172	1.563	2.735
18	1,829	.....	2	2	.....	1.093	1.093
19	1,621	.....	2	2	.....	1.234	1.234
20	1,506	4	1	5	2.656	.664	3.320
21	1,449	2	3	5	1.380	2.070	3.450
22	1,387	.....	3	3	.....	2.163	2.163
23	1,304	.....	2	2	.....	1.534	1.534
24	1,231	2	2	4	1.625	1.625	3.250
25	1,159	.....	4	4	.....	3.451	3.451
26	439	.....	4	4	.....	9.112	9.112
27	341	.....	.....	.....	.....	.....	.....
28	161	.....	.....	.....	.....	.....	.....
29	9	.....	.....	.....	.....	.....	.....
.....	256,450	193	638	831	.753	2.488	3.241

If these two last Tables are examined carefully, it will be seen that the duration of the policy, or rather the length of the period upon which the men were engaged upon active service, had a more important bearing upon the death-rate than the age of the assured.

Generally, as might have been expected, it will be observed that the age distribution had very little effect upon the death-rates, the incidents of the campaign and the length of the period of exposure being much more potent factors.

We now append tables giving the yearly death-rates, the annuity rates, and the single and annual premiums, deduced from the assured experience.

ASSURED YEOMANRY AND VOLUNTEERS.

Yearly Death-Rates.

Ages.	Months of Assurance 1 to 12.				Months of Assurance 13 to 24.			
	Months of Exposure to Risk.	Years of Exposure to Risk. = Col. (2) ÷ 12.	Deaths During Period.	Yearly Death Rates.	Months of Exposure to Risk.	Years of Exposure to Risk. = Col. (6) ÷ 12.	Deaths During Period.	Yearly Death Rates.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
17–22.....	82,161	6,847	263	.038411	19,191	1,599	46	.028768
23–27.....	74,825	6,235	247	.039615	18,927	1,577	70	.044388
28–32.....	29,512	2,459	92	.037414	7,637	637	23	.036107
33–37.....	16,785	1,399	43	.030736	4,211	351	15	.042735
38–42.....	3,166	264	11	.041667	977	81	3	.037037
43–47.....	996	83	4	.048193	344	29	4	.137931
48 and upwards..	176	15	2	.133333	61	5	..	..

ASSURED YEOMANRY AND VOLUNTEERS.

Annuities Obtained from Yearly Death-Rates.

Policy Months. Interest 3 per cent.

Ages.	Months of Assurance 1 to 12.			Months of Assurance 13 to 24.			Col. (4) × Col. (7).	$\ddot{a}^{(12)}_{\overline{12}\rceil}$ × Col. (8).	$A_x : 1\ddot{a}^{(12)}_{\overline{12}\rceil}$ = Col. (4) − Col. (9).
	Yearly Death Rate from Table XV.	$p_x = 1 - q_x$.	$v\,p_x$.	Yearly Death Rate from Table XV.	Col. (5) Subtracted from Unity.	Col. (6) × v.			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
17–22	.038411	.961589	.93358	.028768	.971232	.94294	.88031	.36680	1.30038
23–27	.039615	.960385	.93241	.044388	.955612	.92778	.86507	.36045	1.29286
28–32	.037414	.962586	.93455	.036107	.963893	.93582	.87457	.36440	1.29895
33–37	.030736	.969264	.94103	.042735	.957265	.92938	.87457	.36440	1.30543
38–42	.041667	.958333	.93042	.037037	.962963	.93492	.86987	.36245	1.29287
43–47	.048193	.951807	.92408	.137931	.862069	.83696	.77342	.32226	1.24634
48 and upwards	.133333	.866667	.84142	.....	1.000000	.97087	.81691	.34038	1.18180

ASSURED YEOMANRY AND VOLUNTEERS.

SINGLE AND ANNUAL PREMIUMS.

Policy Months. Interest 3 per cent.

Ages. (1)	Single Premium per £100 from Table XVI. (2)	$1 = {}^{a}_{x:1\frac{5}{12}}$ from Table XVI. (3)	Annual Premium per £100 Col. (2) ÷ Col. (3). (4)
17–22	7.7858	2.30038	3.38457
23–27	7.2410	2.29286	3.15806
28–32	7.9565	2.29895	3.46093
33–37	8.7258	2.30543	3.78489
38–42	6.6771	2.29287	2.91211
43–47	14.8082	2.24634	6.59215
48 and upwards	14.4839	2.18180	6.63851

With regard to this annual premium, it should be noted that it is obtained by the use of an annuity covering a period of two and five-twelfth years only. Strictly, therefore, the last premium charged should be only five-twelfths of that given in column 4. In practice, however, such a procedure would be impossible, as five months before the cessation of hostilities there was no means of estimating how long the operations would last. By charging the full annual premium and returning seven-twelfths (the proportion not required) on the declaration of peace this difficulty is overcome. This was the method adopted in practice by many Offices charging extra premiums for war risk.

The results for age 43 and upwards are deduced from so small an experience as to render them of little value, and although the premiums brought out vary considerably for the other age groups, it is not suggested for one moment that varying premiums ought to be charged to cover the risk of war.

In looking at these premiums it should also be remembered that although the experience included a proportion of officers, the vast majority of the lives observed were non-commissioned officers and men. The rates for officers considered alone would, no doubt, be much higher.

Although the premiums are probably unsuitable as a basis for the calculation of any extra premium required for an officer in the Regulars, they are, we think, valuable should similar auxiliary forces be required in any future war—a not improbable contingency. On the general question of war risk premiums it may be said that there are at least three methods which have been adopted from time to time. Firstly, there is the modern method of asking proposers who are officers in the Navy or Army to pay a moderate fixed extra premium throughout life, or a somewhat higher fixed rate to endure as long as service lasts, either of which covers all risk of foreign service or war. Another system, which I believe has been adopted by some European offices, is to charge an extra premium on the commencement of the war and to pool these premiums, paying an amount at death in proportion to the mortality incurred during the war. The offices by this method incur no extra risk, except it be the risk of deterioration of the lives from wounds and hardships of

the campaign. This method, perhaps, meets the objection which is sometimes urged that the extra premium charged by companies is an exorbitant one, but on the other hand there is no certain amount guaranteed, and it cannot be said that this method is satisfactory.

The third method is, of course, that of charging an extra annual premium at the outbreak of hostilities, to be paid so long as the war risk is incurred. Although it may be generally agreed that the first method of paying a small fixed extra throughout the duration of the policy is the best solution of the difficulty, yet there must always be a large number of combatants who wish to effect assurances for the first time because they are incurring the war risk.

Life Assurance Companies will therefore inevitably be asked to quote war risk premiums on the outbreak of hostilities in any country, and it is in the hope that the statistics gathered together in the foregoing paper may be of some use in the direction of helping to fix upon a correct estimate of the amount of premium required, that this paper is submitted to the Congress.

RÉSUMÉ.

RISQUES DE GUERRE, AVEC RÉFÉRENCE SPÉCIALE À LA GUERRE DANS L'AFRIQUE DU SUD DE 1899 À 1902.

Par Frederick Schooling.

L'article commence par faire remarquer que les risques de guerre diffèrent nécessairement dans différents pays, puis il décrit les différents risques encourus, en mentionnant le fait qu'une classe de risques a acquis de la proéminence par suite de la guerre entre les États-Unis et l'Espagne et de la guerre encore plus récente dans l'Afrique du Sud, c'est le risque encouru par les volontaires qui ne font pas partie de l'armée régulière, mais sont envoyés sur le terrain des opérations. L'auteur, fait remarquer l'article, a eu l'exceptionelle bonne fortune de pouvoir suivre avec exactitude l'expérience d'environ vingt mille miliciens montés et volontaires impériaux dont les vies étaient assurées et qui furent engagés dans la lutte récente de l'Afrique du Sud.

L'article résume brièvement ce qui a été écrit à ce sujet par d'autres auteurs, avec mention spéciale de l'article de MM. Smee et Ackland qui a paru dans le Journal de l'Institut des Actuaires, Londres, volume 34.

M. Schooling aborde ensuite le sujet de l'expérience de mortalité pour l'ensemble des forces impériales engagées dans la dernière guerre de l'Afrique du Sud. Il dit que le ministre de la guerre anglais a donné tout l'aide possible pour préparer les statistiques, mais qu'on ne s'est pas fié aux seuls rapports officiels et qu'on a obtenu la mortalité totale de trois sources indépendantes. Il donne des tables montrant la force des armées dans l'Afrique du Sud pendant différentes périodes de la guerre, en faisant remarquer qu'on a supposé que la période de risque commençait au débarquement dans l'Afrique du Sud et finissait au départ de ce pays. Les forces impériales furent divisées en trois classes pendant la période des recherches: 1 Réguliers et Volontaires; 2 Milice montée (Yeomanry); 3. Coloniaux. L'article donne une table montrant entre autres le taux de la mortalité par mille, par année pour les officiers et les hommes séparément, ainsi que les taux pour l'expérience combinée. L'attention est appelée sur le fait que ces taux de mortalité tombent beaucoup au-dessous des taux de la mortalité de l'armée allemande pendant la guerre franco-allemande et se comparent encore plus favorablement avec les taux de mortalité de l'armée du Nord pendant la Guerre de Sécession aux États-Unis.

Des tables comparent aussi les taux de mortalité pendant diverses périodes de la guerre. En analysant ces tables, on voit, entre autres, que la mortalité due aux blessures était beaucoup plus forte pendant la première année de la guerre que pendant la seconde ou la troisième. En mirant le sujet au point de vue assurance l'auteur montre qu'il serait tout à fait erroné de prendre l'expérience combinée des officiers et hommes comme base de primes.

L'auteur traite ensuite de l'expérience des Miliciens et Volontaires qui étaient assurés. Cette expérience a été suivie d'à-peu-près la même manière que serait suivie l'expérience de vies assurées, dans le but d'obtenir une table ordinaire de mortalité.

Une carte pour chacune des 19,269 vies sous observation a été écrite et les listes données montrent les exposés au risque, en groupes d'âge et en mois de durée d'exposition. Les résultats obtenus sont comparés aux résultats obtenus précédemment pour l'ensemble des forces impériales. Différentes autres listes que donne l'article sont discutées et concluent avec une liste qui montre la prime annuelle pour £100 par chaque groupe d'âges. L'auteur n'en déduit pas cependant que les primes destinées à couvrir le risque de guerre devraient varier avec l'âge de l'assuré.

Enfin l'auteur fait remarquer qu'il y a au moins trois méthodes qui ont été adoptées pour taxer la guerre avec des primes et il espère que les statistiques rassemblées pourront aider à fixer une juste évaluation de la prime additionnelle requise.

KURZE NOTIZ.

RISIKO IN KRIEGSFÄLLEN, MIT BESONDERER BEZUGNAHME AUF DEN KRIEG IN SÜD-AFRIKA 1899-1902.

Von Frederick Schooling.

Der Bericht fängt damit an, darauf hinzuweisen, dass das Risiko in Kriegsfällen nothwendiger Weise ein verschiedenes sein muss in verschiedenen Ländern, und fährt dann fort, die bisher eingetretenen diversen Risikos zu beschreiben, wobei die Thatsache erwähnt wird, dass eine besondere Sorte von Risiko als besonders prominent in dem Kriege zwischen den Vereinigten Staaten und Spanien auftrat, und dann auch in dem späteren Kriege in Süd-Afrika, welches Risiko auf die Freiwilligen Bezug hat, die nicht zur regulären Armee gehören und nach dem Kriegs-Schauplatze entsendet wurden. Es wird dann hervorgehoben, dass der Autor besonders begünstigt war, indem er die Erfahrungen von circa 20,000 kaiserlichen Freisassen und Freiwilligen genau beobachten konnte, die ihr Leben während des süd-afrikanischen Krieges versicherten.

Es wird dann ein kurzer Abriss von dem gegeben, was über diesen Gegenstand von andern Autoren geschrieben worden war, wobei specieller Hinweis auf den Bericht der Herren Smee und Ackland gemacht wird, welcher in dem „Journal of the Institute of Actuaries, London," Band 34, erschien.

Dann wird der Gegenstand der Sterblichkeits-Erfahrungen der gesammten kaiserlichen Truppen im letzten Kriege in Süd-Afrika aufgenommen. Es wird erwähnt, dass das englische Kriegs-Ministerium in jeder Weise in der Aufstellung von Statistiken behilflich war; dass man sich jedoch nicht auf die offiziellen Berichte allein verliess, sondern die Total-Sterbefälle durch 3 besondere unabhängige Quellen festgestellt wurden. Es werden Verzeichnisse der Stärke der Armee in Süd-Afrika zu verschiedenen Perioden des Krieges gegeben, wobei darauf hingewiesen wird, dass das Risiko mit der Landung in Süd-Afrika begann und mit Verlassen des Landes aufhörte.

Durch die ganze Untersuchung hindurch wird die kaiserliche Macht in drei Klassen eingetheilt: erstens die Regulären und Freiwilligen, dann die Freisassen und drittens die Colonisten, und eine Tabelle wird angeführt, welche unter Anderem die Sterbe-Rate pro 1000 und pro Jahr von Offizieren und Mannschaften getrennt angiebt, sowie die Rate für die gesammte Erfahrung zusammengenommen. Es wird erwiesen, dass die Todes-Rate beträchtlich hinter der Rate zurücksteht, welche von der Sterblichkeit der deutschen Armee während des französischen Krieges entnommen ist und sogar noch günstiger ist im Vergleiche mit der Rate der Sterblichkeit der nördlichen Armee während des amerikanischen Bürgerkrieges.

Ferner sind Tabellen angeführt, die die Todes-Raten verschiedener Perioden während des Krieges in Vergleich ziehen. Diese Tabellen werden dann analysiert und es wird unter Anderm darauf hingewiesen, dass die Sterbe-Rate, herbeigeführt durch Wunden, während des ersten Jahres viel grösser war, als im zweiten oder dritten Kriegsjahre. Der Gegenstand wird dann vom Gesichtspunkte der Versicherung besprochen und es wird erwiesen, dass es durchaus irreführend wäre, diese Erfahrung von Offizieren und Mannschaften als eine Basis für Prämien hinzustellen.

Die Erfahrung der versicherten Freisassen und Freiwilligen wird dann behandelt. Dieselbe wurde in derselben Weise befolgt, wie die Erfahrung der versicherten Leben betrachtet werden würde für den Zweck der Aufstellung gewöhnlicher Sterblichkeitsraten.

Es wurde eine Karte für jedes unter Beobachtung stehende Leben von den gesammten 19,269 ausgeschrieben, und Verzeichnisse werden angegeben, in welchen

die der Gefahr Ausgesetzten in Altersgruppen eingetheilt werden und in Monate des Ausgesetztseins. Die Resultate werden dann mit denen früher mit Bezug auf die ganze kaiserliche Kriegsmacht festgestellten verglichen.

Verschiedene andere Verzeichnisse werden gegeben und besprochen, die dann in ein Verzeichnis auslaufen, welches die jährliche Rate für 100 Pfund für jede Altersgruppe angiebt. Es wird jedoch nicht vorgeschlagen, dass die Prämien zur Deckung von Risiko in Kriegsfällen mit dem Alter der zu Versichernden verschieden sein sollten.

Zum Schlusse wird darauf hingewiesen, dass es wenigstens 3 Methoden giebt, welche für die Belastung von Krieg mit Prämien angenommen worden waren, und die Hoffnung ist ausgesprochen, dass die Statistiken, hierin erzielt, eine Hilfe sein mögen, um eine correcte Schätzung für die erforderliche Extra-Prämie abzugeben.

THE RISK-RATE OF THE LATE CHINO-JAPANESE WAR.

BY

KOTARO SCHIDA,

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The wars fought within last ten years, in which the most improved weapons and the most advanced strategy were employed, are those between Japan and China in Asia, between Spain and the United States in North America, between England and Transvaal in Africa, and between China and the allied forces in the Chinese Empire.

The question of war risk, i.e. the estimation of the damage resulting from war, is one which many learned men have ever tried to solve. But, it is to be regretted that, in most cases, their endeavors led to no satisfactory solution owing to the want of statistical materials adequately correct. In solving such a question, care should of course be taken not to jump to the hasty conclusion by simply looking at the number of soldiers standing on the one side. Other circumstances, such as the number of the soldiers belonging to the other side, the prevalence of the military spirit, the excellence of weapons used, the strength of the fortresses, the more or less profound knowledge of topographical conditions, the supply of ammunition, the ability of the commanding officers, the effects of weather, etc., etc., all go far to influence the solution and merit the most careful consideration. One must certainly admit that it is very hard, if not altogether impossible, to calculate and express numerically their respective consequences. A mere consideration of the battles themselves without due regard to those circumstances shall inevitably end in failure, for each battle is beset with conditions peculiar to it, and the rate of the risk necessarily varies from one battle to another.

So far, reference has been made only to the risk of the actual fighting. It should, however, be borne in mind, that the war is attended by another important risk, viz., "pestilential diseases." The destructive nature of the pestilential diseases surpasses even that of battles themselves. History is full of examples. They clearly demonstrate that the diffusion of pestilence not only diminishes the fighting power of the combatant parties, but also paves the way to the increase of war risk.

It affords me a great pleasure to allude briefly, in the following lines, to the damage our army and navy had to suffer during our late war with China, that lasted from 1894 to 1895. In doing so, I have carefully consulted the statistical matters gathered by our government. As army engagements differ so widely in places and manners of fighting from the engagements at sea, I believe the rate of the risk in each case also presents a diversity. I therefore divide my treatise first into two headings—the army engagements and the naval engagements. Further subdivisions into three minute topics, viz., death on the field, the wounded, and the death from sickness, which I have introduced into each of the two headings will, I trust, be also conducive to my purpose.

Army Engagements.

The first engagement on land took place in Corea in July, 1894, to be followed by fifty battles on more or less extensive scale, and many scores of skirmishes, that lasted over sixteen months. The list was only terminated by the battle in Formosa in October, 1895. In one case, in which the greatest number of men were employed, 18,682 men were on the field. The battles fought by over 10,000 men were nine in number; those which required 3,000-10,000 men, also nine; those which required 1,000-3,000 men, nineteen; finally, thirteen battles were fought by men ranging from 150 to 1,000 in number.

When an important number of men is employed by the one party, the forces of the other party are generally also important, and the battle between the parties is consequently of more important nature. It is then easily to be inferred that such a battle generally gives rise to more important damage, and that the extent of the risk is more considerable. The table that follows will enable you to look more closely into the matter.

	Number of men engaged	Number of combatants	Deaths on the field	Rate per mille.
(A)	Over 10,000.....	125,210	430	3.43
(B)	3,000-10,000.....	46,669	138	2.96
(C)	1,000-3,000.....	33,780	85	2.52
(D)	150-1,000.....	6,896	123	17.84
(E)	Below 150.....	117,392	50	0.43
	Totals.....	329,947	826	2.50

The battle fought by over 10,000 men and the most ruinous in consequence, was that of Ping-yang, where no less than 16.23 out of 1,000 died on the field. Then follows in the order of importance the battle in the city of Nyu-chang, in which case the death rate marked 5.78 per mille. Among battles of 3,000-4,000 men, those of Han-wa-sai and Cheng-huang are notorious as unusually disastrous, the death-rate being 13.84 and 8.48 per mille respectively. These facts prove very materially how the death-rate is influenced by the varying importance of the opposing forces. So it may be wrong to try to gauge the rate of the risk, taking into account only the number of men belonging to the one party. But the careful observation of more than ten similar cases leads me to discover that the more the number of men engaged is, the higher is the risk-rate. Attention shall also be drawn to the fact that the combat of very few men generally tends to swell the rate of the risk. I believe the relative importance of the resisting forces accounts for this seemingly anomalous fact.

The following is the table concerning the wounded men:

	Number of men engaged	Number of combatants	Number of the wounded	Rate per mille.
(A)	Over 10,000.....	125,210	19,000	15.17
(B)	3,000-10,000	46,669	887	19.01
(C)	1,000-3,000	33,780	433	12.82
(D)	150-1,000	6,896	230	33.35
(E)	Below 150.....	117,392	243	2.07
	Totals.....	329,947	3,693	11.19

This shows that the tendency of the rate of the wounded men is similar in the main to that of the dead, one exception being that in the

former case (B) stands higher than (A). With regard to (D), both the rate of the dead and that of the wounded are remarkably high.

So far about the damage inflicted in the actual combat. Now something about the damage inflicted otherwise, i.e. the deaths in consequence of sickness. In carrying out the war, our authorities had been particularly careful to prevent possible occurrences of pestilential diseases, and every sanitary means very earnestly resorted to. Nevertheless, dysentery, malarial fever, cholera, typhus, and smallpox crept in, and though happily their propagation was checked before they could do great harm, still the number of patients and that of the deaths from sickness showed the following figures:

Number of maladies	Combatants		Non-combatants	
	Patients	Deaths	Patients	Deaths
Dysentery	6,954	951	4,210	660
Malarial Fever	6,062	295	4,449	247
Cholera	4,333	2,613	4,148	2,598
Typhus	2,238	672	1,567	453
Smallpox	34	4	101	26
Beri-beri	17,224	1,039	12,902	821
Miscellaneous	30,961	1,394	20,236	1,443
Totals	67,806	6,968	47,613	6,248

You will see that 6,968 men among the cambatants succumbed to death in consequence of sickness, i.e. 21.12 per mille. This is about 8.45 times as much as the number of men dying on the field. The patients among the military coolies and others were 47,613 in number, and 6,248 deaths were recorded among them. I regret that the want of their total number makes it impossible to arrive at the ratio which this bears to the whole.

Naval Engagements.

Engagements at sea took place during the nine months ranging from July, 1894, to March, 1895. But the fight with the Chinese fleet took place only at Fen-tao-chung, Hai-yang-tao and Wei-hai-wei. In all other cases, the engagements consisted simply of the bombardment of the Chinese forts. The rate of naval risk is of quite different nature from that of army risk. One cannon ball discharged by a skilled crew may sink one whole gigantic battleship. The rate, therefore, greatly varies according to the type of the ships. Apart from other circumstances, the flagship is exposed to the greater risk. All those circumstances render the task of estimating the risk-rate of the men on board during the naval engagement highly difficult. The following is the result of the battles off Hai-yang-tao and Wei-hai-wei, where, in fact, the bloodiest fight was engaged. In all other naval engagements, no death took place, nor was anybody wounded.

Places of engagements	Number of battleships	Number of days*	Men on board	Deaths	The wounded	Death per mille.	The wounded per mille.
Off Hai-yang-tao...	12	12	3826	90	208	23.51	54.36
Wei-hai-wei.....	38	92	6294	16	43	2.54	6.83

It was in the battle of the Hai-yang-tao that the choicest men-of-war belonging to the two powers met, and it was this battle that had foreshadowed the ultimate end that followed. Though the battle lasted for

only four hours and a half, yet it was fought in such a sanguinary way that 23.51 per mille died and 54.36 per mille wounded. The scene on board the *Matsushima,* our flagship, was specially noteworthy, for there no less than 82 out of 1,000 died on the spot, and as much as 184 out of 1,000 wounded.

It is a well-known fact that the weapons used in the navy are now attaining higher perfection than those of the army. That, as the art of building men-of-war improves, so does the weapons meant to destroy them, is also an established fact. It is only too probable then, that the risk-rate in the naval engagements will be further increased in the future.

*The aggregate of the number of days during which each man-of-war was employed.

RÉSUMÉ.

PRIME DU RISQUE PENDANT LA DERNIÈRE GUERRE ENTRE LA CHINE ET LE JAPON.

Par K. Schida.

La difficulté de l'estimation du risque couru par l'assurance sur la vie en guerre.

L'absurdité de l'essai de résoudre le problème par la pure et pleine observation du nombre des guerriers engagés.

Les circonstances particulières qu'on doit considérer en résolvant le problème convenablement.

Aux maladies pestilentielles il faut faire attention soigneuse, parcequ'elles sont une autre chose d'influence à la grandeur du risque.

Relation générale des engagements des troupes Chinoises et Japonaises en 1894-95, rendant des statistiques des batailles et des forces engagées.

L'examination du nombre des décès au champ de bataille, et l'enquête de l'influence de la masse différente des troupes à la mortalité en guerre.

La statistique des blessures et l'enquête de leur proportion au nombre des guerriers engagés.

La conclusion déduite, que le nombre des décès au champ de bataille et le nombre des blessures diffèrent en proportion hétérogène.

La statistique des maladies pestilentielles.

La comparaison des effets fatals causés par des combats actuels à ceux causés par des maladies pestilentielles.

Quelques remarques générales sur les engagements navals des flottes des deux puissances.

Le risque naval est différent du risque sur terre et son estimation est plus difficile.

Le résultat des batailles de Hai-yan-too et de Wei-hai-wei, et ce qu'on peut déduire en observant leurs détails attentivement.

La conclusion.

KURZE NOTIZ.

DIE KRIEGSFALL-PRÄMIE WÄHREND DES CHINESISCH-JAPANISCHEN KRIEGES.

Von K. Schida.

Die Schwierigkeit der Schätzung der Verluste im Kriege.

Die Aussichtslosigkeit des Versuches, die Frage durch einfache Beobachtung der Anzahl der Soldaten im Felde zu lösen.

Besondere Umstände, welche bei der richtigen Lösung der Frage in Betracht gezogen werden müssen.

Ansteckende Krankheiten verlangen besondere Aufmerksamkeit als weitere, schwer in's Gewicht fallende Ursache der Höhe des Risikos.

Allgemeine Beschreibung der Kämpfe zwischen den Chinesen und Japanesen im Jahre 1894-95 mit statistischen Notizen über die Anzahl der Schlachten und die Grösse der in jeder Schlacht engagierten Streitkräfte.

Prüfung der Todesfälle auf dem Schlachtfelde und Untersuchung des Einflusses der wechselnden Stärke der Truppen auf die Kriegs-Sterblichkeitsrate.

Statistische Notizen über die Verwundeten und Untersuchung des Verhältnisses, in welchem sie zu der Gesammtanzahl der engagierten Truppen stehen.

Schlussfolgerung, dass die Todesfälle auf dem Schlachtfelde und diejenigen infolge von Verwundungen in heterogenem Verhältnis zu einander stehen.

Statistik der ansteckenden Krankheiten.

Vergleichung der Todesfälle auf dem Schlachtfelde und derjenigen infolge von ansteckenden Krankheiten.

Allgemeine Bemerkungen über die Seegefechte der Flotten der beiden Mächte.

Das Risiko des Seekrieges ist von dem des Landkrieges verschieden und schwerer zu schätzen.

Ergebnisse der Schlachten von Hai-yan-too und Wei-hai-wei, und die Schlüsse, die man aus deren genauer Beobachtung ziehen kann.

Schlusswort.

WAR MORTALITY IN THE UNITED STATES.

By Robert George Hann,

Assistant Actuary of the Equitable Life Assurance Society of the United States.

At the request of the President of the Actuarial Society of America I undertook to report on the above subject, not knowing at the time how little authentic information was to be obtained in relation to it, with a view to securing that degree of accuracy and interest which it naturally demands.

This field of investigation in the United States is, apart from medical statistics, a barren one. The only publication on war mortality of which I am aware, in this country, is that by E. B. Elliott, Actuary to the Sanitary Commission. He reported on the Military Statistics of the United States for the first fifteen months of the Civil War, 1863.

In commenting on the returns he states: "The returns of officers of regiments and companies composing them lack consolidation. Some are made merely giving the gain or loss to their respective commands for the intervals reported on, but they do not specify the *nature* of such gain or loss, so that it is difficult to ascertain what has become of the forces from time to time mustered into the service and sent into the field. Later official returns have remedied this defect."

There is, no doubt, considerable material in the archives at Washington to enable one to bring together the mean strength of the forces and compare with them the deaths for corresponding periods. Professional duties precluded me from undertaking such a task at a remote point. My only option, therefore, was to bring together the most reliable statistics that could be found bearing on the subject.

Sources of Information.—I have drawn freely from Army Medical Statistics, by Edward L. Munson, in the Handbook of the Medical Sciences, and have also obtained information from the New International Encyclopædia, 1902, and from the War of the Rebellion (official).

I desire to place on record my cordial thanks to the Adjutant General and Assistant Adjutant General for their kindness in furnishing me with some official reports of the Army; also to those companies that furnished me with returns on permits. I am also under obligation to Mr. R. Henderson and Mr. E. C. Benedict for preparing a portion of the tables that follow.

Thus far there have been but few wars in the United States, due chiefly to its geographical position in relation to other powers and to the character of its people and Government.

History.—Its first great war in which it won renown was that of the Revolution that lasted nearly eight years. The number engaged in both army and navy was about 310,000, of which nearly 131,000 were Regulars. Two naval wars followed, one with France for more than two years, our naval force amounting to 4600. The other with Tripoli for four years, our naval force being less than 3400.

The next great foreign war was with Great Britain, which lasted $2\frac{3}{4}$ years, the United States forces amounting in all to 85,000 Regulars, 472,000 Volunteers and about 20,000 in the navy, making a total force of 577,000.

The Florida Indian War lasted nearly eight years, the forces consisting of 11,200 Regulars and 30,000 Volunteers, or a total of 41,200.

The war with Mexico lasted over eighteen months, and the troops engaged were 31,000 Regulars and 74,000 Volunteers, besides about 7000 in the navy, making in all about 112,000.

There were nine well-defined Indian Wars down to 1858, in which there were engaged in the aggregate about 68,000 Regulars and Volunteers.

The Civil War lasted over four years. The number of Federals in the field was 2,666,999. The number of Confederates in the field was from 500,000 to 600,000.

The last foreign war was the Spanish-American, which lasted less than four months. The fighting was crowded into a period of less than half that time.

Mexican War.—War was declared in April, 1846; it terminated September 14, 1847. During this period of eighteen months there were fought six battles and three cities were besieged. Our total forces were about 112,000.

The deaths in action and from wounds were	14 per 1000
The deaths from disease	104 " "
Total casualties	118 " "

The losses from sickness were excessive, due to the ravages of the climate, poor sanitation, imperfect hygiene and inadequate facilities for properly attending to the sick and wounded, in that day and generation.

Insurance Companies.—There is no evidence on record of any of the twelve Life Companies, then in existence, having granted a war permit. Six of these companies had in force about 1880 policies insuring about $5,400,000. The remaining six companies made no report and could have had very little on their books, which is proved by their later history.

The nearest approach to a war permit at this time was the following: A surgeon of the United States Army paid a Mexican extra of 5 per cent., but the permit did not cover the *risk of death in battle or from wounds.* (See Semi-Centennial History of New York Life.)

Civil War.—At the end of 1860 there were 17 Home and Foreign Companies doing a life business in New York State. These companies carried on their books 33,079 policies insuring $135,571,079, with a premium income of $3,446,404.

Although serious trouble between North and South had been brewing for a considerable time before " the shot heard round the world " had been fired, yet no one was prepared to meet the terrible exigency that confronted us from civil war. Many of the Life Companies then in existence were quite young and carried but little insurance on their books. All, however, were greatly concerned as to the most desirable plan to be adopted to meet the extra charge.

Conference of Life Companies.—A conference of Life Companies was convened in New York City April 19, 1861, to consider the ways and means to meet the contingency of war. It was agreed that the assured should have the option to enter the military or naval service of the United States, upon their paying 5 per cent. per annum of their assurance, to be confined to the locality north of 34 degrees of latitude. An additional 5 per cent. per annum would be chargeable on all risks incurred south of that line. The option was given the assured either to pay the extra premium or have their policies suspended for the time being and renewed upon discharge from war service upon satisfactory evidence of good health. Should the assured assume the risk of war the companies

would allow the *value* of such policies in case of death during such service.

As a rule, the recommendations of the Conference were followed, with a few minor modifications, such as accepting notes for a portion of the extra. It will be recognised by all that the companies were unable to assume the onerous burden of war without receiving the necessary extra therefor; hence the recommendation—either pay the extra or have the policy suspended subject to renewal on discharge from war service, provided the applicant is in sound health and pays the back premiums with interest. Almost without exception, either the reserve or premiums were returned in case of death in war, where no extra had been paid.

As most of the companies were young at the outbreak of the war, the policies could have furnished but little security for the payment of war extras. The disposition to evade payment of the war extra has always been evinced, and after termination of hostilities, those recently assured are very apt to drop their policies.

First Call for Men.—Few, if any, of the members of the Cabinet had any idea of the fearful struggle that was before them. President Lincoln's first call was for 75,000 men for three months.

The Civil War began April 15, 1861. The last fight took place on the Rio Grande, May 13, 1865. By the beginning of July, 1861, the country was aroused to the gravity of the position, and Congress voted 500,000 men and $500,000,000. The South was enlisting 400,000 men under a call from the Confederate Congress.

The campaign was a bitter one and the carnage was great. In twelve of the great battles of the war there were killed in action, 23,500; wounded, 121,000.

Fox, in his Regimental Losses in the Civil War, cites the following:

2nd Wisconsin Regiment,

Number enrolled	1203
Killed and died of wounds	238

Nearly 900 in all were either killed or wounded.

The following figures are reported as official. They loom up as a living monument of the patriotism of the nation in voluntary defence of its flag:

Federal soldiers in field during war	2,666,999
Number *drafted* and held to service	43,347
Substitutes furnished (3,000 added by R. G. H.)	76,607
Paid commutation	86,724
Draft of 1862	87,588
Total drafted	294,266

Elliott, in his Military Statistics of the United States, 1863, gives the following for the first fifteen months of the war:

Killed in action and deaths from wounds	2	per cent per annum
Died from disease and accidents	5.2	" " " "
Total casualties	7.2	" " " "

Comparing the first nine months with the second six months, he shows that the rates of mortality have been increasing both from disease

and violence, with officers and with men. The increase from the latter cause has been much greater than from the former, as is shown below:

Annual Mortality per 1000.	First Nine Months.	SecondSix Months.	Increase.
From wounds	8.6	33.2	24.6
Disease and Accident	44.6	59.7	15.1
All causes	53.2	92.9	39.7

As the proportion of deaths from disease is so great it will be instructive to note how certain diseases are intensified by war. The army consists at the outset of a body of men selected for their good physical condition, hence there can be no disease peculiar to them. The military conditions, however, to which the men are subject during a campaign at once render them susceptible to the spread of the germs of disease; consequently a greater number is attacked and succumbs than would be the case among civilians under different environment. Other things being equal, the longer a war lasts the greater are the deaths from disease. Improvement in the precision and effectiveness of arms has made war more deadly and expensive than heretofore, and consequently shorter in duration. Therefore, if the seat of war is not of vast extent and an ideal country for defence, the tendency in the future will be for the rates of death and disease to approach each other much more closely than in the past.

Of the diseases that slay their thousands, Munson tells us that typhoid was increased tenfold during the Civil War; malarial diseases were doubled; diarrhœa and dysentery tripled; deaths from eruptive fevers became about twenty-two times as frequent as they were before the war; those from diseases of respiratory organs were more than quadrupled; deaths from diseases of circulatory and digestive organs were practically doubled, as was also the mortality from consumption. Strangely enough, rheumatism was not increased, but scurvy was doubled.

E. B. Elliott gives, in his Military Statistics, the distribution by age from 12 to 49, of the Massachusetts Volunteers.

After distributing the 33 that were grouped, at age 50, in the following manner:

46 and over 100
47 and over 72
. .
. .
50 and over 33

} We have the number at 50 and over approximately one-third of the number at 46 and over. Assuming the same law of decrease to hold, we have for age 51 and over, one-third of the number at 47 and over, and so on.

The central death-rate from the American Experience was then prepared and the following table calculated:

MASSACHUSETTS VOLUNTEERS.

Age Last Birthday.	Number Enlisted.	American Exp. M_x	Expected Deaths per Annum.
12	4	.007571	.03
13	4	.007598	.03
14	26	.007625	.20
15	44	.007663	.34
16	101	.007690	.78
17	289	.007718	2.20
18	6396	.007757	49.61
19	4331	.007796	33.76
20	3482	.007835	27.28
21	5020	.007886	39.59
22	5661	.007938	29.06
23	3060	.007990	24.45
24	2721	.008043	21.89
25	2349	.008097	19.02
26	2118	.008160	17.29
27	1826	.008230	15.05
28	1919	.008299	15.95
29	1300	.008380	10.89
30	1464	.008463	12.39
31	929	.008547	7.94
32	1161	.008644	10.04
33	977	.008756	8.55
34	914	.008870	8.11
35	1120	.008986	10.06
36	692	.009130	6.32
37	640	.009277	5.94
38	745	.009453	7.04
39	551	.009633	5.31
40	765	.009843	7.53
41	398	.010058	4.00
42	586	.010305	6.04
43	537	.010573	5.68
44	761	.010888	8.29
45	280	.011226	3.14
46	28	.011629	.33
47	14	.012073	.17
48	16	.012588	.20
49	9	.013192	.12
50	9	.013877	.12
51	5	.014647	.07
52	5	.015508	.08
53	3	.016468	.05
54	3	.017548	.05
55	2	.018745	.04
56	1	.020085	.02
57	1	.021565	.02
58	1	.023202	.02
59	1	.025029	.03
60	1	.027054	.03
61	1	.029303	.03
	51271	.008293	425.17

If the rate of dying at time of enlistment remained constant throughout the year it gives the numbers under column headed "Expected deaths per annum." If the total expected deaths are divided by the number enlisted we obtain the average force of mortality, viz.: .008293 or 8.29 per 1000.

Converting these expected deaths by a standard table of selection expressed as percentages of the American Experience we derive the following:

Group.	Expected Deaths Amer. Exp.		Percentage of Expected by Standard.		Expected Deaths by Standard.
To 30	319.80	×	.43	=	137.51
31–45	103.99	×	.49	=	50.96
46 and over	1.38	×	.55	=	.73
	425.17				189.20

Therefore 189.20 ÷ 51271 = .00369 — average expected mortality among lives recently selected, assuming that all passed a medical examination on entering the army, and that the ages of the Massachusetts Volunteers are a fair type of the whole army. We have a comparison of 72 deaths per 1000 per annum for the first fifteen months in the Civil War, with 3.69 per thousand as the expected rate in the first year, or an excess of, say, 68 per 1000, due to war.

STRENGTH OF UNION ARMY AS GIVEN BY ADJUTANT GENERAL.

Dec. 31, 1860	16,375
June 30, 1861 (Drafts of Annapolis and Kentucky missing)	152,354*
Dec. 31, 1861	527,804
June 30, 1862	624,234
Nov. 24, 1862	775,336†
Dec. 31, 1862	868,591
Apr. 30, 1863	885,413
June 30, 1863	847,886
Dec. 31, 1863	837,078
June 30, 1864	1,001,782
Dec. 31, 1864	936,996
Apr. 30, 1865	1,052,038‡
Nov. 10, 1865	182,784

* Report of Secretary of War, July 1, 1861, gives 230,000, but includes 50,000 Volunteers and 25,000 Regulars recently enlisted and not yet on active duty.

† From reports of Generals commanding, includes Regulars 26,255, leaving for Volunteers 749,081. Account of Volunteers at same date from payrolls gives 790,197.

‡ Secretary of War Reports 1865,

May 1, 1864	970,710
Mch. 1, 1865	965,591
May 1, 1865	1,000,516

but above figures are considered more accurate.

Having procured three additional returns of figures, besides those given in strength of army, they are inserted in the following table:

OFFICERS, N. C. O's AND MEN.

Date.	Number.		Months Exposed.		Exposures in Months.
Apr. 1, 1861	16375	×	1½	=	24563
June 30, "	152354	×	4½	=	685593
Dec. 31, "	527804	×	6	=	3166824
June 30, 1862	624234	×	5½	=	3433287
Nov. 30, "	775336	×	3	=	2326008
Dec. 31, "	868591	×	2½	=	2171477
Apr. 30, 1863	885413	×	3	=	2656239
June 30, "	847886	×	4	=	3391544
Dec. 31, "	837078	×	5	=	4185390
May 1, 1864	970710	×	3	=	2912130
June 30, "	1001782	×	4	=	4007128
Dec. 31, "	936996	×	4	=	3747984
Mar. 1, 1865	965591	×	2	=	1931182
Apr. 30, "	1052038	×	2½	=	2630095
Aug. 1, "	399367	×	3	=	1198101
Nov. 1, "	182784	×	3½	=	639744
					12)39107289
			Years of exposure		32589941

The time of exposure is derived thus: June 30 to Dec. 31, '61, is six months; April 1 to June 30, '61, is three months. Half the sum will give 4½ months—so on for the rest, except the last, which was assumed to run for the *full* number to the end of the year.

Deaths in United States Army during War of the Rebellion.	Total Number.	Rate per 1000 per Annum.
Killed by enemy	110238	33.82
Died of disease	224586	68.91
Accidental deaths	9371	2.88
Violent deaths	3212	.99
Causes not stated	12121	3.72
Total	359528	110.32 or 11.03%

The deaths were distributed thus:

	Officers.	Men.	Total.
Regular Army	310	5538	5848
Volunteers	9274	344406	353680
	9584	349944	359528

Taking the general mortality at ¾ of 1 per cent., we have an excess of about 10 per cent. due to the War of the Rebellion. I anticipated a high rate, but did not expect to find it reach the above figures.

The total deaths among Federal prisoners amounted to 29,498. The remainder of the death-roll, viz.: 330,030, was proved by records in the Adjutant General's Office. The deaths among prisoners were not so satisfactory. The defective records of the Confederate prisons were supplemented by information from surviving comrades and from the "Roll of Honor." The bodies were often buried in trenches three or four deep. The deaths among prisoners are as correct as can be procured, but it is believed that they fall somewhat below the real number.

Deaths from war will, of course, vary with the character of the campaign, due to climate, general conditions, local diseases, efficiency of Commissariat and Transportation Departments, the proportion of seasoned to unseasoned troops, duration of war, sanitary conditions, condition of the trenches in cases of protracted sieges, and finally the fighting qualities of the foe.

Considerable difficulty is experienced when we attempt to compare military with civil statistics, owing to rejections of recruits, and the constant weeding out from the army on account of physical disability. These help to increase the mortality of those in civil life, while the mortality in military life is appreciably decreased. Viry thought the military rate should be increased 7.20 per 1000 on this account. This has been considered by some to be too high a correction. It is a material question even in time of peace, and becomes greatly intensified in time of war. The effect of the rejections in the United States Army, of, say, 62,000 men, is of little moment, in comparison with males of the military age living in the United States.

The loss of time from sickness in all armies is considerable, and is due somewhat to malingering. The following tables, from Handbook of the Medical Sciences, will be found replete with interest on this subject, and they also throw light on those discharged for disability. They are based on 1000 mean strength:

UNITED STATES ARMY FROM 1890 TO 1896.

Rates from Disease Alone per 1000 Enlisted Men.

Branch of Service.	Admissions to Hospital.	Constantly Non-effective.	Discharges for Disability.	Deaths per Annum.
Infantry	916.27	27.96	13.67	4.34
Cavalry	1076.56	30.87	13.36	3.98
Artillery	1163.61	31.81	15.61	2.94
Ordnance	1007.15	25.69	9.79	7.20
Engineers	1371.55	29.88	7.56	2.84
Medical Dept.	468.85	14.99	11.24	5.14
All others	941.51	30.23	10.15	5.07

The heavy mortality in the Ordnance Department is doubtless due to the force including many old superannuated soldiers. The duties of the Cavalry and Artillery render them more liable to accidents than those in other branches of the service.

Rates for All Causes per 1000 Enlisted Men.

Branch of Service.	Admissions to Hospital.	Constantly Non-effective.	Discharges for Disability	Deaths per Annum.
Infantry	1154.21	35.36	16.72	6.49
Cavalry	1464.10	43.92	17.61	7.25
Artillery	1457.87	41.11	18.47	5.30
Ordnance	1187.38	31.81	11.23	10.65
Engineers	1684.92	38.45	7.88	4.73
Medical Dept.	527.04	17.08	12.19	6.09
All others	1100.02	34.77	12.12	6.13

The high rate of admissions among Engineers is prominent, and was due to injuries and malarial fevers, with a great excess of alcoholism, bronchitis, diarrhœa and rheumatism. The high rate from disability in the Cavalry, as compared with the Infantry, arose from injuries which gave the rate for Cavalry of 387.54, as compared with 237.94 for Infantry. Malarial affections were naturally the chief causes, from the nature of their duties.

The death-rate per 1000 among Officers was as follows:

Infantry	8.81
Cavalry	10.34
Artillery	6.08
Ordnance	17.41
Engineers	11.07
Medical Dept.	10.20
All others	12.32

The following table shows the influence of age on sickness and mortality among the enlisted strength per 1000:

Age.	Admissions to Hospital from Disease.	Constantly Non-effective from Disease.	Discharged for Disability from Disease.	Deaths from Disease.
19 yrs. and under	2244.79	60.73	22.61	5.32
20–24	1359.63	39.52	14.42	2.93
25–29	896.65	26.06	11.96	3.13
30–34	755.64	21.53	10.69	3.73
35–39	718.43	21.32	10.32	4.32
40–44	798.09	24.87	16.65	7.46
45–49	755.01	24.16	15.26	10.97
50–54	843.48	28.96	31.11	13.18
55–59	875.22	34.93	43.55	16.75
60 and over	1265.31	72.91	122.64	66.04

The younger men, among both officers and men, appear most susceptible to disease, as well as prone to injury. For this period of seven years typhoid fever was more prevalent among those under 30 years of age. Enlisted men under 25 years of age suffered more from malarial fevers than did officers of the same age, but as the ages advanced the rates of the men differed but little from those of the officers. Tuberculosis was distributed equally among men between 20 and 50. The rates for pneumonia and kidney diseases were heaviest after 45 years of age.

The Surgeon General gives statistics for the seven years from 1890 to 1896 in the United States Army, for an equivalent strength for one year of 14,859 officers and 174,988 enlisted men.

The following are deduced from the above:

	Per 1000.
Sick rate for officers	765.69
" " " men	1258.90
Non-efficiency rate for officers	44.27
" " " " men	37.63
Average death-rate for officers	9.56
" " " " men	6.52

It must be borne in mind that the military age of the men ceases practically at 44. Only $6\frac{1}{2}$ per cent. of this class remains after that age, while $37\frac{1}{4}$ per cent. of the officers was over 44 years.

Immense strides have been made during the past generation through military hygiene, which is found to influence favourably the mortality among military men in the time of peace. For the five years previous to the Spanish-American War the death-rate was 3½ times less than that for the five years preceding the war with Mexico, while the rate for sickness underwent a diminution of about 2⅓ times during the period included by those dates. Since 1872, the death-rate from all causes is about 40 per cent. of what it was at that time; and the death-rate from sickness alone has fallen almost as much. The rate for admission to sick report has diminished more than one-half, thereby pointing to a far higher standard of duty.

Spanish-American War.

This war began April 21, 1898, and terminated August 12 of the same year—a period of less than four months. Congress voted $50,000,000, and 200,000 men.

Naval Engagements.—May 1. Dewey destroyed the Spanish fleet at Manila. The American casualties were seven men wounded.

July 3. Cervera's fleet was destroyed by Sampson. The American losses were one man killed and one wounded.

In the bombardment of Cienfuegos and Cardenas the Americans lost one officer and four men.

August 13. Manila was bombarded and surrendered.

Battles.—The principal fighting was at San Juan and El Caney. It lasted three days.

The American losses were:

Killed,	22	officers and	208	men.
Wounded,	81	" "	1203	"

July 17. Santiago surrendered.

This was essentially a soldier's battle under the eye of his immediate officers. The courage, discipline and dash of the soldier in the face of great difficulties, against a brave foe, were simply superb.

Porto Rico.—General Miles conducted this campaign. The plan was devised and carried out in a brilliant manner without a flaw. He attacked the Spaniards at Ponce, July 25th, almost before they heard of his arrival. During this campaign of nineteen days six engagements had been fought, resulting in the capture of a large portion of the island. The American losses were 3 killed and 40 wounded.

August 12, the General received notice of suspension of hostilities.

Spanish-American & Philippine War.—Although the loss in battle was very slight, typhoid fever was a great scourge in the camps, especially at first. The total number of deaths from May 1, 1898, to April 30, 1899, was 6352, of which 5718 died of disease.

Medical assistance was altogether inadequate.

At the outbreak of this war free permits were granted, as a rule, to those holding policies and taking part in the war, so long as they remained in the United States. To those who went beyond the United States a permit was generally granted by the companies, on condition that their policies were placed in a class and became subject to the payment of the cost of any extra mortality due to the war, provided it did not exceed ten per cent. of the assurance. Others again charged a nominal extra without provision to return any portion thereof.

It turned out that most of the deaths took place in camps in the United States, where permits were free. For the rest the benefit was first granted, and the consideration therefor was to be received afterwards. The result was, that comparatively recent policies were aban-

doned in order to avoid the payment of the small extra. There was considerable dissatisfaction among those whose policies afforded ample security for the payment of the extra.

The claims in excess of the American Experience on $1,388,833 of assurance, in an office well known to me, during the first year of the Spanish-American War, was $20,983, or 1.51 per cent. of the exposures. This did not include those who remained in camp in the United States. The war charge should, of course, have been compared with a select table, but we desired to make the charge as light as possible for the assured.

The following tables are made up from official sources and can be relied on as being the most precise returns that can be procured during war. For the last year of the war the number of officers is out of all proportion to the number of men. This is no doubt due to a number of the Regular Army Officers still ranking as Volunteer Officers.

Table I brings together a comparative statement of the deaths among the Regular and Volunteer Officers, and also a similar comparison for the N. C. O's and men, of the Regulars and Volunteers respectively.

Officers of Regular Army.—Table II gives the details for officers of the Regulars for the whole period of the war. The average strength is the arithmetic mean of the force at the beginning and end of each month, with the exception of the first month in 1898. I could procure no available data at the beginning of May, and thought it would be better to take the force at the end of month, as the strength of the month, than to make some arbitrary assumption as to mean force, especially since the forces were gathering before May. In any case the aggregate results are inappreciably affected thereby.

In the first four months of 1898 the Regulars bore the brunt of the fighting in Cuba, as is shown by the death-rate. At that time the Volunteers in Cuba chiefly comprised the Seventy-first Regiment of New York and the First Cavalry, or Rough Riders. The death-rate from wounds shows where most of the fighting took place. The death-rate from disease reached its maximum in the month following the battles and decreased for the next three months. This is where typhoid and climate got in their deadliest work. The next five months was a period of peace. This was followed by the Philippine War. The average monthly death-rate from wounds for the fourteen months was 56 per cent. of that from sickness. The heaviest fighting in the Philippines took place in October and November of the following year, at which time the deaths from sickness were at their lowest.

Volunteer Officers.—Table III. It will be seen at a glance that the Volunteers saw little active service in Cuba, with the exception mentioned under Table II. The death-rate from wounds was heaviest in the first five months of 1899. The Volunteers saw the brunt of the fighting in the Philippines. After the first year the death-rate from wounds was nearly constant, but they suffered from sickness most severely in the last year. The deaths, however, are but few.

Regulars, N. C. O's & Men.—Table IV. The same law of heavy death-rate during hostilities, followed by a maximum rate from sickness in the following month and decreasing for the two successive months, prevails here, as was the case among the officers. During the first year the deaths from wounds was about half that among the officers, while the deaths from sickness was nearly one-third greater. For the whole period the death-rate from wounds was less than half that of the officers, while the death-rate from sickness was 50 per cent. greater.

Volunteer N. C. O's & Men.—Table V. The death-rate from wounds and from sickness naturally follow that of their officers. The rate from sickness did not reach its maximum till September. It was more than 40 per cent. higher during the fourteen months than that among

the officers, while the death-rate from wounds was nearly 50 per cent. less. The heaviest loss from sickness was in the first year. When the heavy fighting is over the deaths from sickness increase, as a rule, with the length of service.

Whole Experience.—Table VI. This table reveals the following:

1st period.—The heavy fighting in Cuba and Porto Rico was with the Regulars. The deaths from wounds among officers were 84 per cent. greater than among the N. C. O's and men. The deaths from sickness, however, among the officers, were only 76 per cent. of that among the latter. The second period was a time of peace. The third, fourth and fifth periods cover the war in the Philippines, which was largely borne by Volunteers. During the third period of the war the Volunteers in the Philippines suffered more heavily than the Regulars, both from wounds and disease. The better seasoned troops had a decided advantage in this respect. In the fifth period the death-rate among the Volunteer N. C. O's and men, both from wounds and disease, was much greater than among the enlisted men of the Regulars. During this war actual hostilities lasted only for a short time, but the rate of sickness makes the extra appreciable.

The annual death-rate for the whole army for four years and two months is 24.51 per 1000, but for nearly three and a half years of this time it was but a guerrilla war in the Philippines. If we regard the first period only, in which the principal fighting was carried on by the Regulars, we have the following:

FIRST PERIOD OF FOUR MONTHS.

	Annual Deaths per 1000.
Officers	64.17
Men	58.48
Officers and Men	58.75
Taking the mortality for the assured at	7.50
we have left	51.25

or say, 5 per cent. as representing active service for a short period only in the Tropics.

Table VII. The following table differs from the former tables in one essential respect. The whole of the given force was at the seat of war, and not to a large extent in camps in the United States, as in the case of the former tables. We were unable to separate the Philippine from the Spanish-American War.

Philippines.—The severest fighting took place in 1900. Total casualties among men 20 per cent. greater than among officers. The deaths from disease among the men were nearly *three times* greater than among the officers. If closer attention were paid by the men to sanitation and hygiene the deaths from disease would, no doubt, be greatly reduced. Among the officers, deaths from disease exceeded those from wounds by only 20 per cent.

Cuba.—Here the total casualties closely approach each other, but the deaths from disease among the officers is nearly 50 per cent. greater than those from wounds, while in the case of the men they are 250 per cent. greater.

The figures for the Chinese Relief Expedition are given simply to complete the canon of United States Wars. They are too small in number to be of much moment. Although the expedition was engaged but for only a few months, the results nevertheless indicate that very heavy losses may be expected in any war in the Tropics, if carried on for the average time of modern wars.

SCHEDULE A.

STRENGTH OF FORCES IN SPANISH-AMERICAN AND PHILIPPINE WAR AT END OF EACH MONTH.

Date.	Regulars.		Volunteers.	
	Officers.	Non-commissioned Officers & Men.	Officers.	Non-commissioned Officers & Men.
May, 1898	2191	36625	6221	118555
June "	2198	45669	7160	153210
July "	2327	51721	8640	202841
Aug. "	2323	54039	8895	207361
Sept. "	2325	57325	8726	199805
Oct. "	2326	58310	7127	157612
Nov. "	2324	61444	5216	110202
Dec. "	2311	63370	4775	98481
Jan., 1899	2308	63223	4303	85938
Feb. "	2373	57684	3515	66181
Mar. "	2357	61110	2740	47586
Apr. "	2435	60804	1849	28277
May "	2433	60766	1108	15825
June "	2471	62258	933	14499
July "	2447	64226	1336	21234
Aug. "	2452	62847	1397	24452
Sept. "	2450	62169	1683	31236
Oct. "	2472	62389	1628	33465
Nov. "	2462	63186	1493	31500
Dec. "	2465	63564	1492	31526
Jan., 1900	2459	64168	1496	31393
Feb. "	2454	64601	1499	31276
Mar. "	2451	64831	1513	31421
Apr. "	2444	65313	1516	31359
May "	2440	65283	1512	31191
June "	2486	65669	1531	31467
July "	2533	66886	1544	30849
Aug. "	2538	68045	1546	30673
Sept. "	2532	68211	1547	30484
Oct. "	2539	68322	1555	30161
Nov. "	2539	68351	1547	29650
Dec. "	2526	67837	1547	29199
Jan., 1901	2525	69729	1547	28037
Feb. "	2575	71083	1502	26180
Mar. "	2565	73557	1538	23367
Apr. "	2595	75920	1415	19152
May "	2687	77494	1123	12147
June "	2940	78646	350	3011
July "	3041	81264	304	733
Aug. "	3141	83271	303	797
Sept. "	3273	84070	323	827
Oct. "	3383	84979	317	843
Nov. "	3406	83795	315	849
Dec. "	3415	82555	324	850
Jan., 1902	3458	79463	327	853
Feb. "	3479	77764	328	848
Mar. "	3514	75257	331	849
Apr. "	3516	73305	325	859
May "	3529	72219	324	864
June "	3604	70990	325	863

TABLE I.

SPANISH-AMERICAN AND PHILIPPINE WAR.

Deaths from all Causes in United States Army.

Month.	Officers.						Non-com. Officers and Men.					
	Regulars.			Volunteers.			Regulars.			Volunteers.		
	Wounds.	Disease.	Total.	Wounds.	Disease.	Total.	Wounds.	Disease.	Total.	Wounds.	Disease.	Total.
May, 1898	....	3	3	....	2	2	....	9	9	....	46	46
June "	1	1	2	1	3	4	8	29	37	8	91	99
July "	24	6	30	2	11	13	248	146	394	42	302	344
Aug. "	....	13	13	1	30	31	16	418	434	18	951	969
Sept. "	....	9	9	....	33	33	1	336	337	2	1180	1182
Oct. "	1	4	5	....	20	20	5	168	173	....	666	666
Nov. "	....	3	3	....	4	4	1	90	91	....	285	285
Dec. "	....	2	2	....	3	3	....	76	76	....	143	143
Jan., 1899	....	1	1	....	5	5	....	69	69	....	121	121
Feb. "	1	3	4	4	6	10	20	57	77	63	101	164
Mar. "	3	4	7	7	2	9	31	58	89	60	80	140
Apr. "	1	1	2	2	1	3	14	88	102	49	38	87
May "	....	3	3	3	....	3	4	83	87	17	26	43
June "	....	2	2	....	1	1	36	75	111	7	13	20
1st Year	31	55	86	20	121	141	384	1702	2086	266	4043	4309
July, 1899	....	5	5	....	6	6	14	106	120	1	23	24
Aug. "	1	3	4	....	....	....	19	95	114	2	20	22
Sept. "	....	2	2	....	1	1	4	101	105	2	21	23
Oct. "	5	1	6	2	....	2	12	107	119	7	22	29
Nov. "	6	2	8	2	2	4	15	95	110	12	26	38
Dec. "	2	3	5	1	2	3	8	116	124	17	29	46
Jan., 1900	2	2	4	....	2	2	18	93	111	34	50	84
Feb. "	1	3	4	1	3	4	9	78	87	25	53	78
Mar. "	2	....	2	1	1	2	10	95	105	17	62	79
Apr. "	....	1	1	....	1	1	7	66	73	38	43	81
May "	....	....	....	1	1	2	6	61	67	25	78	103
June "	1	2	3	....	3	3	5	87	92	25	71	96
2d Year	20	24	44	8	22	30	127	1100	1227	205	498	703
July, 1900	1	3	4	0	3	3	35	99	134	14	103	117
Aug. "	3	1	4	4	....	4	31	97	128	11	109	120
Sept. "	2	3	5	....	4	4	23	124	147	29	82	111
Oct. "	1	3	4	3	3	6	12	89	101	13	81	94
Nov. "	....	2	2	....	3	3	7	75	82	9	83	92
Dec. "	....	1	1	....	1	1	8	91	99	14	72	86
Jan., 1901	1	1	2	1	....	1	2	57	59	10	42	52
Feb. "	....	1	1	....	1	1	8	65	73	2	39	41
Mar. "	....	2	2	....	1	1	7	70	77	1	38	39
Apr. "	....	2	2	....	4	4	....	75	75	1	22	23
May "	....	1	1	....	....	....	3	73	76	....	14	14
June "	4	1	5	....	....	....	3	75	78	....	15	15
3d Year	12	21	33	8	20	28	139	990	1129	104	700	804
July, 1901	1	2	3	....	....	....	1	95	96	....	....	....
Aug. "	....	2	2	....	1	1	5	102	107	....	1	1
Sept. "	3	....	3	1	1	2	45	98	143	....	....	....
Oct. "	....	3	3	1	....	1	17	103	120	....	....	....
Nov. "	....	6	6	....	....	....	5	98	103	....	....	....
Dec. "	....	3	3	....	2	2	15	81	96	....	....	....
Jan., 1902	1	3	4	....	....	....	5	71	76	....	1	1
Feb. "	....	4	4	....	....	....	2	75	77	....	2	2
Mar. "	....	2	2	....	....	....	3	95	98	....	....	....
Apr. "	....	3	3	....	1	1	....	83	83	....	....	....
May "	1	1	2	....	....	....	9	85	94	....	....	....
June "	....	....	....	....	2	2	3	131	134	....	....	....
4th Year	6	29	35	2	7	9	110	1117	1227	....	4	4
Total	69	129	198	38	170	208	760	4909	5669	575	5245	5820

TABLE II.

SPANISH-AMERICAN AND PHILIPPINE WAR.

OFFICERS. REGULARS.

Month.	Average Strength.	Deaths During Month.			Monthly Death-rate per 1000.		
		Wounds.	Disease.	Total.	Wounds.	Disease.	Total.
May, 1898	2191	.....	3	3	.....	1.37	1.37
June "	2195	1	1	2	.46	.45	.91
July "	2263	24	6	30	10.61	2.65	13.26
Aug. "	2325	.....	13	13	.....	5.59	5.59
Sept. "	2324	.....	9	9	.....	3.87	3.87
Oct. "	2326	1	4	5	.43	1.72	2.15
Nov. "	2325	.....	3	3	.....	1.29	1.29
Dec. "	2318	.....	2	2	.....	.86	.86
Jan., 1899	2310	.....	1	1	.....	.43	.43
Feb. "	2341	1	3	4	.43	1.28	1.71
Mar. "	2365	3	4	7	1.27	1.69	2.96
Apr. "	2396	1	1	2	.42	.42	.84
May "	2434	.....	3	3	.....	1.23	1.23
June "	2452	.....	2	2	.....	.82	.82
	32565	31	55	86	.95	1.69	2.64
July, 1899	2459	.....	5	5	.....	2.03	2.03
Aug "	2450	1	3	4	.41	1.22	1.63
Sept. "	2451	.....	2	2	.....	.82	.82
Oct. "	2461	5	1	6	2.03	.41	2.44
Nov. "	2467	6	2	8	2.43	.81	3.24
Dec. "	2464	2	3	5	.81	1.22	2.03
Jan., 1900	2462	2	2	4	.81	.81	1.62
Feb. "	2457	1	3	4	.41	1.22	1.63
Mar. "	2453	2	.....	2	.82	.....	.82
Apr. "	2448	.....	....1..	...1..	.....	.41	.41
May "	2442	.....	.....	.....	.....	.....	.....
June "	2463	1	2	3	.41	.81	1.22
	29477	20	24	44	.68	.81	1.49
July, 1900	2510	1	3	4	.40	1.19	1.59
Aug. "	2536	3	1	4	1.18	.39	1.57
Sept. "	2535	2	3	5	.79	1.18	1.97
Oct. "	2536	1	3	4	.39	1.18	1.57
Nov. "	2539	.....	2	2	.....	.79	.79
Dec. "	2533	.....	1	1	.....	.39	.39
Jan., 1901	2526	1	1	2	.40	.39	.79
Feb. "	2550	.....	1	1	.....	.39	.39
Mar. "	2570	.....	2	2	.....	.78	.78
Apr., "	2580	.....	2	2	.....	.77	.77
May "	2641	.....	1	1	.....	.38	.38
June "	2814	4	1	5	1.42	.36	1.78
	30870	12	21	33	.39	.68	1.07
July, 1901	2991	1	2	3	.33	.67	1.00
Aug. "	3091	.....	2	2	.....	.65	.65
Sept. "	3207	.....3...	.....	3	.95	.....	.95
Oct. "	3328	.....	3	3	.....	.90	.90
Nov. "	3395	.....	6	6	.....	1.77	1.77
Dec. "	3411	.....	3	3	.....	.88	.88
Jan. 1902	3437	1	3	4	.29	.87	1.16
Feb. "	3469	.....	4	4	.....	1.15	1.15
Mar. "	3497	.....	2	2	.....	.57	.57
Apr. "	3515	.....	3	3	.....	.85	.85
May "	3523	1	1	2	.28	.28	.56
June "	3567	.....	.....	.....	.....	.....	.....
	40431	6	29	35	.15	.72	.87
Total	133343	69	129	198	.52	.97	1.49

TABLE III.

SPANISH-AMERICAN AND PHILIPPINE WAR.

OFFICERS, VOLUNTEERS.

Month.	Average Strength.	Deaths During Month.			Monthly Death-rate per 1000.		
		Wounds.	Disease.	Total.	Wounds.	Disease.	Total.
May, 1898	6221	.....	2	2	.....	.32	.32
June "	6691	1	3	4	.15	.45	.60
July "	7900	2	11	13	.25	1.39	1.64
Aug. "	8768	1	30	31	.11	3.42	3.53
Sept. "	8811	.....	33	33	.....	3.75	3.75
Oct. "	7927	.....	20	20	.....	2.52	2.52
Nov. "	6172	.....	4	4	.....	.65	.65
Dec. "	4996	.....	3	3	.....	.60	.60
Jan., 1899	4539	.....	5	5	.....	1.10	1.10
Feb. "	3909	4	6	10	1.02	1.54	2.56
Mar. "	3128	7	2	9	2.24	.64	2.88
Apr. "	2295	2	1	3	.87	.44	1.31
May "	1479	3	.....	3	2.03	.....	2.03
June "	1021	.....	1	1	.....	.98	.98
	73857	20	121	141	.27	1.64	1.91
July, 1899	1135	.....	6	6	.....	5.29	5.29
Aug. "	1367	.....	.....	.....	.....	.....	.....
Sept. "	1540	.....	1	1	.....	.65	.65
Oct. "	1656	2	.....	2	1.21	.....	1.21
Nov. "	1561	2	2	4	1.28	1.28	2.56
Dec. "	1493	1	2	3	.67	1.34	2.01
Jan., 1900	1494	.....	2	2	.....	1.34	1.34
Feb. "	1498	1	3	4	.67	2.00	2.67
Mar. "	1506	1	1	2	.66	.66	1.32
Apr. "	1515	.....	1	1	.....	.66	.66
May "	1514	1	1	2	.66	.66	1.32
June "	1522	.....	3	3	.....	1.97	1.97
	17801	8	22	30	.45	1.23	1.68
July, 1900	1538	.....	3	3	.....	1.95	1.95
Aug. "	1545	4	.....	4	2.59	.....	2.59
Sept. "	1547	.....	4	4	.....	2.59	2.59
Oct. "	1551	3	3	6	1.93	1.94	3.87
Nov. "	1551	.....	3	3	.....	1.93	1.93
Dec. "	1547	.....	1	1	.....	.65	.65
Jan., 1901	1547	1	.....	1	.65	.....	.65
Feb. "	1525	.....	1	1	.....	.66	.66
Mar. "	1520	.....	1	1	.....	.66	.66
Apr. "	1477	.....	4	4	.....	2.71	2.71
May "	1269	.....	.....	.....	.....	.....	.....
June "	737	.....	.....	.....	.....	.....	.....
	17354	8	20	28	.46	1.15	1.61
July, 1901	327	.....	.....	.....	.....	.....	.....
Aug. "	304	.....	1	1	.....	3.29	3.29
Sept. "	313	1	1	2	3.20	3.20	6.40
Oct. "	320	1	.....	1	3.13	.....	3.13
Nov. "	316	.....	.....	.....	.....	.....	.....
Dec. "	320	.....	2	2	.....	6.25	6.25
Jan., 1902	326	.....	.....	.....	.....	.....	.....
Feb. "	328	.....	.....	.....	.....	.....	.....
Mar. "	330	.....	.....	.....	.....	.....	.....
Apr. "	328	.....	1	1	.....	3.05	3.05
May "	325	.....	.....	.....	.....	.....	.....
June "	325	.....	2	2	.....	6.15	6.15
	3862	2	7	9	.52	1.81	2.33
Total	112874	38	170	208	.34	1.50	1.84

TABLE IV.

SPANISH-AMERICAN AND PHILIPPINE WAR.

NON-COMMISSIONED OFFICERS AND MEN.—REGULARS.

Month.	Average Strength.	Death During Month.			Monthly Death-rate per 1000.		
		Wounds.	Disease.	Total.	Wounds.	Disease.	Total.
May, 1898	36625	.....	9	9	.....	.25	.25
June "	41147	8	29	37	.19	.71	.90
July "	48695	248	146	394	5.09	3.00	8.09
Aug. "	52880	16	418	434	.30	7.90	8.20
Sept. "	55682	1	336	337	.02	6.03	6.05
Oct. "	57818	5	168	173	.09	2.90	2.99
Nov. "	59877	1	90	91	.02	1.50	1.52
Dec. "	62407	.....	76	76	.....	1.22	1.22
Jan., 1899	63297	.....	69	69	.....	1.09	1.09
Feb. "	60453	20	57	77	.33	.94	1.27
Mar. "	59397	31	58	89	.52	.98	1.50
Apr. "	60957	14	88	102	.23	1.44	1.67
May "	60785	4	83	87	.07	1.36	1.43
June "	61512	36	75	111	.59	1.22	1.81
	781532	384	1702	2086	.49	2.18	2.67
July, 1899	63242	14	106	120	.22	1.68	1.90
Aug. "	63537	19	95	114	.30	1.50	1.80
Sept. "	62508	4	101	105	.06	1.62	1.68
Oct. "	62279	12	107	119	.19	1.72	1.91
Nov. "	62788	15	95	110	.24	1.51	1.75
Dec. "	63375	8	116	124	.13	1.83	1.96
Jan., 1900	63866	18	93	111	.28	1.46	1.74
Feb. "	64385	9	78	87	.14	1.21	1.35
Mar. "	64716	10	95	105	.15	1.47	1.62
Apr. "	65072	7	66	73	.11	1.01	1.12
May "	65298	6	61	67	.09	.93	1.02
June "	65476	5	87	92	.08	1.33	1.41
	766542	127	1100	1227	.16	1.44	1.60
July, 1900	66278	35	99	134	.53	1.49	2.02
Aug. "	67466	31	97	128	.46	1.44	1.90
Sept. "	68128	23	124	147	.34	1.82	2.16
Oct. "	68267	12	89	101	.18	1.30	1.48
Nov. "	68337	7	75	82	.10	1.10	1.20
Dec. "	68094	8	91	99	.12	1.34	1.46
Jan., 1901	68783	2	57	59	.03	.83	.86
Feb. "	70406	8	65	73	.11	.92	1.03
Mar. "	72320	7	70	77	.10	.97	1.07
Apr. "	74739	.....	75	75	.....	1.00	1.00
May "	76707	3	73	76	.04	.95	.99
June "	78070	3	75	78	.04	.96	1.00
	847595	139	990	1129	.16	1.17	1.33
July, 1901	79955	1	95	96	.01	1.19	1.20
Aug. "	82268	5	102	107	.06	1.24	1.30
Sept. "	83671	45	98	143	.54	1.17	1.71
Oct. "	84525	17	103	120	.20	1.22	1.42
Nov. "	84387	5	98	103	.06	1.16	1.22
Dec. "	83175	15	81	96	.18	.97	1.15
Jan., 1902	81009	5	71	76	.06	.88	.94
Feb. "	78614	2	75	77	.03	.95	.98
Mar. "	76511	3	95	98	.04	1.24	1.28
Apr. "	74281	.....	83	83	.....	1.12	1.12
May "	72762	9	85	94	.12	1.17	1.29
June "	71605	3	131	134	.04	1.83	1.87
	952763	110	1117	1227	.12	1.17	1.29
Total	3348432	760	4909	5669	.23	1.46	1.69

TABLE V.

SPANISH-AMERICAN AND PHILIPPINE WAR.

NON-COMMISSIONED OFFICERS AND MEN.—VOLUNTEERS.

Month.	Average Strength.	Deaths During Month.			Monthly Death-rate per 1000.		
		Wounds	Disease.	Total.	Wounds.	Disease.	Total.
May, 1898	118555	.....	46	46	.....	.39	.39
June "	135883	8	91	99	.06	.67	.73
July "	178026	42	302	344	.24	1.69	1.93
Aug. "	205101	18	951	969	.09	4.64	4.73
Sept. "	203583	2	1180	1182	.01	5.80	5.81
Oct. "	178709	.....	666	666	.....	3.73	3.73
Nov. "	133907	.....	285	285	.....	2.13	2.13
Dec. "	104342	.....	143	143	.....	1.37	1.37
Jan., 1899	92210	.....	121	121	.....	1.31	1.31
Feb. "	76060	63	101	164	.83	1.33	2.16
Mar. "	56884	60	80	140	1.05	1.41	2.46
Apr. "	37932	49	38	87	1.29	1.00	2.29
May "	22051	17	26	43	.77	1.18	1.95
June "	15162	7	13	20	.46	.86	1.32
	1558405	266	4043	4309	.17	2.59	2.76
July, 1899	17867	1	23	24	.06	1.31	1.37
Aug. "	22843	2	20	22	.09	.87	.96
Sept. "	27844	2	21	23	.07	.76	.83
Oct. "	32351	7	22	29	.22	.68	.90
Nov. "	32483	12	26	38	.37	.80	1.17
Dec. "	31513	17	29	46	.54	.92	1.46
Jan., 1900	31460	34	50	84	1.08	1.59	2.67
Feb. "	31335	25	53	78	.80	1.69	2.49
Mar. "	31349	17	62	79	.54	1.98	2.52
Apr. "	31390	38	43	81	1.21	1.37	2.58
May "	31275	25	78	103	.80	2.49	3.29
June "	31329	25	71	96	.80	2.27	3.07
	353039	205	498	703	.58	1.41	1.99
July, 1900	31158	14	103	117	.45	3.31	3.76
Aug. "	30761	11	109	120	.36	3.54	3.90
Sept. "	30579	29	82	111	.95	2.68	3.63
Oct. "	30323	13	81	94	.43	2.67	3.10
Nov. "	29906	9	83	92	.30	2.78	3.08
Dec. "	29425	14	72	86	.47	2.45	2.92
Jan., 1901	28618	10	42	52	.35	1.47	1.82
Feb. "	27109	2	39	41	.07	1.44	1.51
Mar. "	24774	1	38	39	.04	1.53	1.57
Apr. "	21260	1	22	23	.04	1.04	1.08
May "	15650	.....	14	14	.....	.90	.90
June "	7579	.....	15	15	.....	1.98	1.98
	307142	104	700	804	.34	2.28	2.62
July, 1901	1872	.....	.....	.....	.....	.....	.....
Aug. "	765	.....	1	1	.....	1.31	1.31
Sept. "	812	.....	.....	.....	.....	.....	.....
Oct. "	835	.....	.....	.....	.....	.....	.....
Nov. "	846	.....	.....	.....	.....	.....	.....
Dec. "	850	.....	.....	.....	.....	.....	.....
Jan., 1902	852	.....	1	1	.....	1.17	1.17
Feb. "	851	.....	2	2	.....	2.35	2.35
Mar "	849	.....	.....	.....	.....	.....	.....
Apr. "	854	.....	.....	.....	.....	.....	.....
May "	862	.....	.....	.....	.....	.....	.....
June "	864	.....	.....	.....	.....	.....	.....
	11112	.....	4	4	.....	.36	.36
Total	2229698	575	5245	5820	.26	2.35	2.61

TABLE VI.

SPANISH-AMERICAN AND PHILIPPINE WAR.

EXPERIENCE OF UNITED STATES ARMY, MAY 1, 1898, TO JUNE 30, 1902.

PERIODS.	Months of Exposure.	Years of Exposure.	DEATHS.			ANNUAL DEATH-RATE PER 1000.		
			Wounds.	Disease.	Total.	Wounds.	Disease.	Total.
Officers—Regulars.								
1st period	8974	748	25	23	48	33.42	30.75	64.17
2nd "	11603	967	1	19	20	1.03	19.65	20.68
3rd "	11988	999	5	13	18	5.01	13.01	18.02
4th "	29477	2457	20	24	44	8.14	9.77	17.91
5th "	30870	2572	12	21	33	4.67	8.16	12.83
6th "	40431	3369	6	29	35	1.78	8.61	10.39
	133343	11112	69	129	198	6.21	11.61	17.82
Officers—Volunteers.								
1st period	29580	2465	4	46	50	1.62	18.66	20.28
2nd "	32445	2704	0	65	65	.00	24.04	24.04
3rd "	11832	986	16	10	26	16.23	10.14	26.37
4th "	17801	1483	8	22	30	5.39	14.83	20.22
5th "	17354	1446	8	20	28	5.53	13.83	19.36
6th "	3862	322	2	7	9	6.21	21.74	27.95
	112874	9406	38	170	208	4.04	18.07	22.11
All Officers.								
1st period	38554	3213	29	69	98	9.03	21.48	30.57
2nd "	44048	3671	1	84	85	.27	22.88	23.15
3rd "	23820	1985	21	23	44	10.58	11.59	22.17
4th "	47278	3940	28	46	74	7.11	11.68	18.79
5th "	48224	4018	20	41	61	4.98	10.20	15.18
6th "	44293	3691	8	36	44	2.17	9.75	11.92
	246217	20518	107	299	406	5.21	14.57	19.78
Regulars.—N. C. O's & Men.								
1st period	179347	14946	272	602	874	18.20	40.28	58.48
2nd "	299081	24923	7	739	746	.28	29.65	29.93
3rd "	303104	25259	105	361	466	4.16	14.29	18.45
4th "	766542	63879	127	1100	1227	1.99	17.22	19.21
5th "	847595	70633	139	990	1129	1.97	14.02	15.99
6th "	952763	79397	110	1117	1227	1.39	14.07	15.46
	3348432	279037	760	4909	5669	2.72	17.59	20.31
Volunteers.—N. C. O's & Men.								
1st period	637565	53130	68	1390	1458	1.28	26.16	27.44
2nd "	712751	59396	2	2395	2397	.03	40.32	40.35
3rd "	208089	17341	196	258	454	11.30	14.88	26.18
4th "	353039	29420	205	498	703	6.97	16.93	23.90
5th "	307142	25595	104	700	804	4.06	27.35	31.41
6th "	11112	926	....	4	4	.00	4.32	4.32
	2229698	185808	575	5245	5820	3.09	28.23	31.32
All N. C. O's & Men.								
1st period	816912	68076	340	1992	2332	4.99	29.26	34.25
2nd "	1011832	84319	9	3134	3143	.11	36.57	36.68
3rd "	511193	42600	301	619	920	7.07	14.53	21.60
4th "	1119581	93299	332	1598	1930	3.56	17.13	20.69
5th "	1154737	96228	243	1690	1933	2.53	17.56	20.09
6th "	963875	80323	110	1121	1231	1.37	13.96	15.33
	5578130	464845	1335	10154	11489	2.87	21.84	24.71
Total Officers	246217	20518	107	299	406	5.21	14.57	19.78
Total N. C. O's & Men	5578130	464845	1335	10154	11489	2.87	21.84	24.71
Total	5824347	485363	1442	10453	11895	2.97	21.54	24.51

In these tables 1st period equals 4 months from May 1, 1898.
2nd " 5 "
3rd " "
4th, 5th and 6th periods equal 1 year each.

TABLE VII.

COMBINED FORCES AT *SEAT* OF WAR.

Officers of Regulars and Volunteers in Philippine Islands.

Year ending June 30.	Average Strength.	Deaths.			Deaths per Annum per 1000 Strength.		
		Wounds.	Disease.	Total.	Wounds.	Disease.	Total.
1899	865	5	5	10	5.34	5.34	10.68
1900	1896	25	24	49	13.18	12.66	25.84
1901	2253	17	21	38	7.55	9.32	16.87
1902	1433	8	16	24	5.58	11.17	16.75
	6447	55	66	121	8.58	10.30	18.88

N. C. O's and Men—Regulars and Volunteers.

1899	20385	114	142	256	5.16	6.43	11.59
1900	50101	332	1061	1393	6.63	21.18	27.81
1901	59171	193	1082	1275	3.26	18.29	21.55
1902	36444	110	751	861	3.01	20.61	23.62
	166101	749	3036	3785	4.51	18.28	22.79
Total Officers & Men	172548	804	3102	3906	4.66	17.97	22.63

Officers of Regulars and Volunteers in Cuba.

1899	821	27	26	53	35.88	34.55	70.43
1900	485	.....	7	7	.....	14.43	14.43
1901	243	.....	6	6	.....	24.73	24.73
1902	159	.....	1	1	.....	6.29	6.29
	1708	27	40	67	15.81	23.42	39.23

N. C. O's and Men—Regulars and Volunteers.

1899	18198	293	882	1175	17.56	52.88	70.44
1900	10112	.....	146	146	.....	14.44	14.44
1901	5312	.....	64	64	.....	12.05	12.05
1902	3560	.....	13	13	.....	3.65	3.65
	37182	293	1105	1398	7.88	29.72	37.60
Total Officer & Men	38890	320	1145	1465	8.23	29.44	37.67

China Officers—Regulars.

1901	93	2	1	3	21.51	10.75	32.26

China N. C. O's and Men—Regulars.

1901	2384	49	50	99	20.55	20.97	41.52
Total Officers & Men	2477	51	51	102	20.59	20.59	41.18
Philippines	172548	804	3102	3906	4.66	17.97	22.63
Cuba	38890	320	1145	1465	8.23	29.44	37.67
China	2477	51	51	102	20.59	20.59	41.18
Total 4 yrs.	213915	1175	4298	5473	5.49	20.09	25.58

Life Assurance War Extras.

An endeavor was made to procure any information the Life Insurance Companies might have in connection with the Spanish-American and Philippine War. Although considerable time was spent in obtaining the returns, it was found that many of the companies could not tell, from the nature of their contracts, who went to war. The following information pertains only to numbers of policies, as I could not well ask for returns by names of assured. The dates, again, were given in many cases, so that the results had to be drawn up by calendar years.

Of the 5599 permits received:

4650 were issued in 1898
534 " " " 1899
415 " " " 1900

The experience under war permits includes that of the Army and Navy Class during time of war.

The issues of 1898 include all war permits issued in that year, together with all policies in Army and Navy Class issued in 1898, or prior thereto. They were considered as being exposed for three-quarters of a year in 1898. These issues furnish 7048 years of exposure, out of a total of 7974. They, therefore, form the bulk of the experience. They also furnish 145 deaths out of a total of 152.

It was my intention originally to compare the actual deaths with the American Experience. Hence the Army and Navy Class was mixed with the war permits and all treated alike. As the investigation proceeded it was deemed advisable to compare the actual deaths, approximately at least, with a select table.

The expected deaths were made up on the basis of lives selected at the time the permits were issued, because the appplicants for the greater portion of them had to pass a rigid examination before they could qualify as Volunteers.

Percentages of the American Experience being taken, so as to run parallel with the bases of comparison adopted by the Mortality Investigation Committee of the Actuarial Society of America, the following percentages were chosen:

Present Ages.	Current Calendar Yr. Per cent.	Succeeding Year. Per cent.	Next Succeeding Year. Per cent.
To 30 inclusive	43	60	75
31-45	49	67	79
46 and over.	53	70	80

The experience shows a steady diminution of the extra mortality, due to war service, during the period of observation. The extra mortality was as follows:

	Average per 1000.	Average per 1000 for Period.
1898	18.39	
1899	13.44	13.22
1900	3.01	

There is no material variation in the rates, when arranged according to ages attained. The middle ages, however, are the worst.

In cases where the permit ceased during 1898, the experience of the policy was followed to the end of the year and included in the experience of that year, as the permits in all cases covered the period of actual fighting.

In considering the experience of the year 1898, we must keep in mind it represents the experience of the last nine months of the year, and that about two months of this represents actual fighting in the army.

Since all the Army and Navy Class did not constitute recently selected lives, the following correction has been made:

Of the issues of 1898, 3321 were war permits and 1329 Army and Navy Class policies issued in 1898, or prior thereto. From the distribution by duration of these 1329 policies, they may be assumed to be equivalent to 758 recently selected lives, and 571 from which the effect of selection had practically disappeared, making in all 4079 recently selected, out of a total of 4650, so that the reduction in the expected deaths of the 1898 issues, can be safely approximated at $\frac{4079}{4650}$ or 87.72 per cent. of what it would have been if all were recently selected. Taking 95 per cent. of the American Table as a measure of the expected mortality at the military ages, after selection has practically worn out, and applying this correction, we should add 1.96 to the expected deaths in 1898; .89 to those in 1899, and .26 to those in 1900. The excess of actual over expected would be reduced to corresponding amounts. The excess per thousand exposed would be as follows:

Experience.	Corrected for Army & Navy.	Instead of	Reduction.
1898	17.81	18.39	.58
1899	13.11	13.44	.33
1900	2.87	3.01	.14

In the year when there was any real war the extra is fully $1\frac{3}{4}$ per cent., and for the whole period it is over $1\frac{1}{4}$ per cent.

Security for Lien at Issue of Permit.—Of the 3321 war liens granted, 955 were on new policies, and 1779 of them had not been in force two years, while 2458 of the permits were all within five years' duration. Assuming the average age at entry of the policies at 28, we present the following table as interesting in this connection:

DURATION OF POLICIES WHEN WAR PERMITS WERE ISSUED.

Duration.	War Lien.	Army & Navy Class.	Total.
0.....	955	585	1540
Under 1 yr..	334	113	447
2 " ..	490	68	558
3 " ..	257	165	422
4 " ..	247	83	330
5 " ..	175	34	209
6 " ..	138	22	160
7 " ..	144	20	164
8 " ..	108	30	138
9 " ..	108	39	147
10 " ..	72	25	97
11 " ..	44	24	68
12 " ..	24	22	46
13 " ..	25	22	47
14 " ..	30	16	46
15 " ..	25	12	37
16 " ..	31	17	48
17 " ..	17	14	31
18 " ..	15	18	33
19 " ..	7	.....	7
20 " ..	10	.....	10
21 " ..	10	.....	10
22 " ..	11	.....	11
23 " ..	8	.....	8
24 " ..	6	.....	6
25 " ..	7	.....	7
26 " ..	5	.....	5
27 " ..	.....	.....	.....
28 " ..	5	.....	5
29 " ..	2	.....	2
30 " ..	5	.....	5
31 " ..	2	.....	2
32 " ..	1	.....	1
33 " ..	.....	.....	.....
34 " ..	2	.....	2
35 " ..	.....	.....	.....
36 " ..	1	.....	1
	3321	1329	4650

AGE 28.
TERMINAL RESERVE PER 1000.
AMER. 3%.

Year.	Life.	Life 20.	End. 20
1	10	19	34
2	20	39	70
3	30	59	107
4	41	80	146
5	51	101	185
6	63	124	227
7	74	147	269
8	86	171	314
9	99	196	360
10	111	222	408
11	124	248	457
12	137	276	509
13	151	305	562
14	165	334	618
15	180	365	675
16	194	396	735
17	209	429	797
18	225	463	862
19	241	498	930
20	257	534	1000

This table will enable one to see how much security is furnished by the policies at different stages. It is proper to point out in veiw of inital expense, that the real security at end of first year is somewhat *less than the reserve.*

Terminated Permits.—The experience on terminated permits to end of 1900 was then traced, with a view to find what effect, if any, the wear and tear of the short war had on the assured soon after discharge from service.

(1) Gives the experience, arranged so as to complete the current calendar year of termination of permit. The result shows an excess of 1.47 per 1000.

(2) Gives the experience, arranged by calendar years following the year permit terminated. The excess loss per 1000 is 4.60. For the whole experience the excess per 1000 is 3.11.

(4) This division shows the whole experience by calendar year of exposure, and appears to point clearly to a heavy excess loss in year following war, with a diminishing excess as we recede therefrom.

(5) Here the figures practically apply to the Spanish-American War only. These figures are less than total experience given in former portion of table, because they exclude those exposures that properly belonged to the Philippines.

Most of the permit terminations in 1899 occurred early in the year, and represent the terminations of permits that had been granted for one year to cover the Spanish-American War. There is consequently no material difference between these terminations and those of 1898, so far as the war service performed is concerned.

From the combination given under division (5) by following the experience through we get an idea of the after effects of the Spanish-American War on those who took part therein.

TABLE VIII.

SPANISH-AMERICAN AND PHILIPPINE WAR.

War Experience of Assured by Policies from April 1, 1898, to Dec. 31, 1900.

	Exposed.	Deaths.	Expected Deaths.		Excess. Actual over Expected.	Actual, per 1000 Exposed.	Excess, per 1000 Exposed.
			American Experience Table.	Select Table.			
Issues of 1898.							
Experience of 1898.....	3487	80	33.59	15.92	64.08	22.94	18.39
" " 1899.....	2409	49	24.57	16.10	32.90	20.34	13.66
" " 1900.....	1152	16	12.80	10.03	5.97	13.89	5.18
	7048	145	70.96	42.05	102.95	20.58	14.61
Issues of 1899.							
Experience of 1899.....	260	4	2.24	1.02	2.98	15.38	11.46
" " 1900.....	459	2	4.17	2.64	.64	4.36	1.39
	719	6	6.41	3.66	2.34	8.35	3.25
Issues of 1900.							
Experience of 1900.....	207	1	1.86	.85	.15	4.83	.72
Total	7974	152	79.23	46.56	105.44	19.05	13.22
Adjusted for Army & Navy Class Issues of 1898	.....	.....	.....	49.67	102.33	.....	12.83

All Issues by Year of Exposure and Age Attained.

Experience of 1898.							
To age 30	1740	37	14.02	6.03	30.97	21.27	17.80
31 to 45.....	1316	32	12.18	5.97	26.03	24.28	19.78
46 and over.....	431	11	7.39	3.92	7.08	25.52	16.39
	3487	80	33.59	15.92	64.08	22.94	18.39
Adjusted for Army&NavyC.....	.....	.....	.....	17.88	62.12	.....	17.81
Experience of 1899.							
To age 30.....	1192	17	9.66	5.56	11.44	14.27	9.60
31 to 45.....	1075	24	9.98	6.56	17.44	22.33	16.22
46 and over	402	12	7.17	5.00	7.00	29.85	17 41
	2669	53	26.81	17.12	35.88	19.63	13.44
Adjusted for Army&NavyC.....	.....	.....	.....	18.01	34.99	.....	13.11
Experience of 1900.							
To age 30.....	830	7	6.74	4.34	2.66	8.43	3.20
31 to 45.....	679	8	6.45	4.77	3.23	11.79	4.76
46 and over	309	4	5.64	4.41	.41	12.94	1.33
	1818	19	18.83	13.52	5.48	10.45	3.01
Adjusted for Army&NavyC.....	.....	.....	.....	13.78	5.22	.....	2.87

Whole Experience by Age Attained.

To age 30.....	3762	61	30.42	15.93	45.07	16.22	11.98
31 to 45.....	3070	64	28.61	17.30	46.70	20.85	15.21
46 and over	1142	27	20.20	13.33	13.67	23.64	11.97
	7974	152	79.23	46.56	105.44	19.05	13.22
Adjusted for Army&NavyC.....	.....	.....	.....	49.67	102.33	.....	12.83

TABLE IX.

SPANISH-AMERICAN AND PHILIPPINE WAR.

MORTALITY EXPERIENCE ON TERMINATED PERMITS AT END OF 1900.

PERMIT—DATE OF.			Years Exposed.	Dead.	EXPECTED.		Excess, Actual—Select, Expected.	Excess per 1000 Exposed.	
Issue.	Termination.	Exposed.			American Experience.	Select Table.			
1898	1899	1899	1349	11	13.06	8.49	2.51	.....	
1898	1900	1900	30	0	.33	.26	.26	.....	
1899	1899	1899	18	0	.16	.07	.07	.....	(1)
1899	1900	1900	15	0	.15	.10	.10	.....	
			1412	11	13.70	8.92	2.08	1.47	
1898	1898	1899	728	10	6.95	4.48	5.52	.....	
1898	1899	1900	1855	20	18.49	14.41	5.59	.....	(2)
1899	1899	1900	22	1	.21	.13	.87	.....	
			2605	31	25.65	19.02	11.98	4.60	
1898	1898	1900	710	6	6.92	5.38	.62	.87	(3)
Total			4727	48	46.27	33.32	14.68	3.11	
Exp. of 1899			2095	21	20.17	13.04	7.96	3.80	
" " 1900			2632	27	26.10	20.28	6.72	2.55	(4)
			4727	48	46.27	33.32	14.68	3.11	
1898	1898+1899	1899	2077	21	20.01	12.97	8.03	3.87	
1898	1898+1899	1900	2565	26	25.41	19.79	6.21	2.42	(5)
			4642	47	45.42	32.76	14.24	3.07	

ARMY AND NAVY CLASS.

It is customary for some of the offices to place military and naval men in a class, instead of charging an extra premium. At the end of their respective bonus periods the cost of any excess of mortality, over that of civilians under similar contracts, will be deducted from the profits.

Table X gives the summary of the experience worked out on policies by policy years. It covers twenty years ending with the issues of 1900.

The expected mortality is made up on basis adopted by the Mortality Investigation Committee.

The excessive mortality in the early years is due to the large number of recent policies at outbreak of Spanish-American War. The experience at the young ages is bad throughout, which is to be expected.

In the first five years, or period of selection, the actual to the expected by a select table was 196.6 per cent., with little variation between the ages at entry from 15 to 56. There is really no experience beyond 56. For the period thereafter the actual to the expected among the young entrants, up to age 28 inclusive, is 237.6 per cent., with a very favorable experience after that age; or for the whole of the business after selection it is nearly 107 per cent. Taking the whole of the business, we have an excessive rate for the young ages at entry, of 202 per cent., with a sudden decrease of about 32 per cent. of the former for ages 29 to 56 inclusive. The excess charge per annum per 1000 exposed, for the whole business, is $4\frac{3}{4}$.

TABLE X.

ASSURED LIVES.

EXPERIENCE OF ARMY & NAVY CLASS FOR 20 YEARS.

	Number of Policies Exposed.	Deaths.			Excess: Actual over Expected	Per Cent. of Actual to Expected.	Excess per 1000 Exposed.
		Actual.	Expected.				
			American Experience.	Select Table.			
1st year	2321	36	17.25	10.08	25.92	356.8	11.17
2d year	1672	20	15.68	10.24	9.76	195.3	5.84
3d to 5th year	2770	31	27.76	23.94	7.06	129.5	2.55
6th to 20th year	2691	37	35.87	34.63	2.37	106.8	.88
Total	9454	124	96.56	78.89	45.11	157.1	4.77
Age at Entry.	FIRST FIVE YEARS.						
15 to 28	2809	27	.....	14.22	12.78	189.9	4.55
29 to 42	2936	37	.....	18.78	18.22	197.0	6.21
43 to 56	925	18	.....	9.43	8.57	190.9	9.27
57 to 70	93	5	.....	1.83	3.17	273.2	34.09
Total	6763	87	60.69	44.26	42.74	196.6	6.32
Age at Entry.	SUBSEQUENT YEARS.						
15 to 28	586	12	.....	5.05	6.95	237.6	11.86
29–42	1586	14	.....	17.78	3.78	78.7	2.38
43–56	471	9	.....	9.58	.58	93.9	1.23
57–70	48	2	.....	2.22	.22	90.1	4.58
Total	2691	37	35.87	34.63	2.37	106.8	.88
Age at Entry.	ALL YEARS.						
15–28	3395	39	.....	19.27	19.73	202.4	5.81
29–42	4522	51	.....	36.56	14.44	139.5	3.19
43–56	1396	27	.....	19.01	7.99	142.0	5.72
57–70	141	7	.....	4.05	2.95	172.8	20.92
Total	9454	124	96.56	78.89	45.11	157.1	4.77

ARMY AND NAVY CLASS ALL AGES.

Policy Year.	Exposed.	Actual Deaths.	Expected Deaths.	
			Amer. Exp.	Select Table.
1	2321	36	17.25	10.08
2	1672	20	15.68	10.24
3	1277	17	12.42	9.85
4	833	8	8.38	7.47
5	660	6	6.96	6.62
6	471	4	5.16	5.01
7	365	9	4.13	4.01
8	317	4	3.75	3.63
9	287	3	3.56	3.45
10	258	3	3.40	3.28
11	215	4	3.02	2.91
12	174	0	2.52	2.43
13	151	1	2.31	2.22
14	127	2	2.05	1.97
15	105	2	1.81	1.73
16	75	2	1.30	1.25
17	57	1	1.06	1.01
18	45	1	.92	.88
19	28	1	.58	.56
20	16	0	.30	.29
	9454	124	96.56	78.89

The disadvantages of classes for such a purpose are:

First—The assessment of the extra charge in a fortuitous manner, thereby gravely disturbing the equities between the members. A glance at the table will show that 30 per cent. of the total deaths fell in the *first* year, and nearly 70 per cent. of them fell in the period of selection. The accumulation of such a charge from the early years is apt to become a severe strain on the bonuses, if it should have to bear one ordinary war. It is true that where the deaths occur, the profits remain in the fund. The amount of the profit, however, if any, in the early stages is comparatively small.

Secondly—It is a most undesirable plan, to first grant the privilege to all and collect the charge thereafter from the survivors of the bonus periods. Such a course will not add to the popularity of life assurance when the day of settlement arrives. Knowing as we do, that the extra cost of war in Temperate climates, among those from whom we draw our clients, does not fall much, if anything, below 5 per cent., especially when we take into consideration the subsequent impairment of the lives, the cost of the option should be met from the start and paid with the premiums. If the policy is old enough to carry the lien, credit can be given in cases where the extra premium cannot be met.

It is obvious to all that premium war credits should be reduced to a minimum. Therefore, professional soldiers and seamen should be charged a sufficient extra in their premium to cover the risk of war during military service. It is in the hands of the offices, as a body, to place the charge where it belongs. It is hardly practicable to expect civilians to pay extras in time of peace. When war arises these will have to be dealt with in some special way, with a view to collect the charge, or its equivalent, while the war permit runs. At least half the annual premium should be payable as it falls due, together with interest on the amount of credit, and notes might be taken for the balance. Ordinary wars possibly will not exceed two years duration on the average.

Ample security for an advance of half the war extra for two years would be furnished by a three per cent. American reserve on policies four, two, and one year old, respectively, on Life, Life 20 Payment and Endowment 20 Year contracts. The difficulty is, therefore, with those holding life policies of less than four years duration at beginning of war. The amount of the notes, with interest thereon, could be made repayable in a short number of years after the war. To provide for the reduction of the amount of assurance is undesirable, as most policyholders think they are being unfairly treated if the original amount be reduced. The offices should insist on the collection of the notes in those cases where policies are dropped in order to escape honorable obligations entered upon. This, again, would only be practicable if the offices agreed upon some common plan of collecting such liens.

There was much correspondence in the daily press of Great Britain, in respect to the onerous conditions thrust upon military men who were required to pay extra premiums. It was also pointed out on more than one occasion that American companies made no charge, which was not the case. The question is, shall the members pay the extra premiums on their policies, or shall they be settled by someone else? Neither patriotism nor sentiment has anything to do with this matter. So far as I am aware, if the Government needed any weapons or munition of war, or if a volunteer needed boots, blankets or any other equipments, they would have to pay for their respective orders. Why then should the assured expect to be exempt from paying the proper premium on his assurance?

No two wars are likely to result in the same degree of casualties. Therefore, it is impossible to predict in advance what the war extra should be. It will either have to be decided upon when war is declared,

or else a common extra, of, say, 5 per cent., will have to be agreed on between the offices, as an annual charge to cover all wars. The latter plan would be open to the objection of not being appropriate for any particular campaign. It would, however, afford the desideratum of having a fixed charge in advance, to avoid the uncertainty of war-extra charges.

In conclusion, I am fully aware of the imperfections of this article, due chiefly to the scarcity of material available for the preparation of such a report. The time spent in collecting the material presented, precluded me from giving it the finish that I could have desired.

The nation has cause to be grateful to her army and navy for the skill, courage, valour and self-sacrifice displayed on all occasions, in bringing the war to a speedy and successful termination.

Finally, the Government, in its mode of dealing with her late foe, has given an object lesson to the world on the amenities of war.

RÉSUMÉ.

LA MORTALITÉ EN GUERRE DANS LES ÉTATS-UNIS.

Par Robert George Hann.

1. Des explications brèves de la mortalité en guerre aux États-Unis.

2. Relation de Monsieur Elliott à la Commission Sanitaire, que la mode militaire des rapports n'est pas faite pour traiter les forces de l'enrôlement au camp et pour en suivre les mouvements ultérieurs.

3. L'auteur donne un précis d'histoire des guerres des plus importantes dès la révolution jusqu'à la guerre Espagnole. Aussi l'étendue de l'Assurance sur la vie justement avant l'éclat de la guerre Mexicaine et de la guerre civile.

4. Une conférence d'actuaires s'est décidée à imposer un extra de 5% aux assurés domiciliés au nord du 34^{me} degré de latitude, et d'autres 5% aux risques tenus au sud de cette ligne. Faute de payer cet extra, l'assurance devenait suspendue, sauf la restitution en son premier état.

5. *Guerre civile.*—La mortalité annuelle est rendue pendant les premiers quinze mois de la guerre; aussi une comparaison pour montrer l'accroissement de la mortalité par l'effet des maladies et des blessures dans les derniers six mois de cette période. Il est demontré clairement, que l'armée active,—quoiqu'elle soit composée des corps d'élite au commencement,—vu, l'aglomération est beaucoup plus susceptible que le civil aux maladies contagieuses (ainsi que des autres sortes). Les espèces les plus fréquentes des maladies sont nommées.

6. *Guerre civile.*—En prenant pour toute l'armée les rapports militaires des Volontaires de Massachusetts, des faits sont donnés pour le calcul des frais annuels extraordinaires de la guerre pour les premiers quinze mois; aussi bien que des tables de la quantité des forces des états desquelles on a dérivé le nombre proportionné des morts annuelles par 1000. Rapport des morts parmi les prisonniers féderaux au Sud. Ensuite les conditions qui influent sur la mort pendant la guerre sont données, et en même temps les difficultés de la comparaison de la statistique des morts militaire et civile,—fondées sur le remplacement continuel des corps robustes à la place des frêles par la première,— et sur l'incluse des individus débilités par l'autre.

7. Tables des pertes de l'armée des états dans sept années de paix, que donnent les soldats congédiés invalides et ceux morts de maladies, à tout prendre, et l'influence de l'âge sur la maladie et la mortalité. Les jeunes hommes, les officiers aussi bien que les simples soldats, sont les plus susceptibles de maladie et le plus disposés aux blessures. La Statistique de Monsieur le Chirurgien Général. La dernière génération a bien réduit la mortalité parmi les hommes de guerre par l'hygiène militaire.

8. *La guerre espagnole.*—Les actions les plus importantes et leurs pertes y sont énumérées.

9. Des permis sont émis sans frais aux volontaires demeurant dans les états. La fièvre typhoide était la maladie principale et mortelle pour la plupart. C'étaient les assurés auxquels il fallait quitter les états qu'on avait placés dans une classe spéciale en vue de leur faire payer à la fin de la guerre l'extra pos-

siblement causé par l'excès de la mortalité supputée. Beaucoup de jeunes hommes aimaient mieux abandonner leurs polices que de payer l'extra.

10. D'autres tables donnent les effets des officiels rapports mensuels sur les officiers des troupes régulières et volontaires séparément. La Table VII ne donne que le résultat des rapports d'apris le théâtre de la guerre.

Dans la guerre Espagnole les hostilités les plus sérieuses furent faites dans les quatre premiers mois de la guerre. Les lésions les plus sévères ont eu lieu parmi les Réguliers; aux Philippines, au contraire, les blessures des les volontaires étaient les plus marquées.

Dans l'annee suivant la mortalité fut très remarquable pendant le service actif; mais elle diminue plus tard. Les troupes inacclimatées ne résistaient pas au climat aussi bien que les troupes acclimatées.

11. *Taxes extraordinaires pour l'assurance sur la vie en guerre.*—La mortalité à l'égard des polices d'assurance est donnée; et il est démontré que la mortalité en guerre excède celle qui est supposée en vertu de la Table Américaine, aussi bien que celle trouvée par une table spéciale, fondée sur les assurances reconnues exactes. En conséquence les Tables pour les assurés de l'armée et de la marine ont été changées.

12. Une autre table donne le temps de la validité des polices, etc., après avoir émis les permis.

13. L'effet des permis écoulés est montré pour déterminer l'influence d'une guerre malgré sa longueur.

14. *La classe de l'armée et de la marine.*—Voilà le résultat de l'assurance pendant vingt ans en vertu de l'âge des polices; la mortalité annuelle en guerre surpasse aussi la mortalité trouvée par des tables spéciales. Dans les premiers cinq ans il y a peu de différence parmi les âges au-dessus de cinquante-six ans. La mortalité extraordinaire des premières années est causée par le grand nombre de nouvelles polices émises avant la déclaration de la guerre Espagnole.

15. C'est un désavantage prononcé de quelques classes, qui est démontré pour justifier les extras.

16. Enfin des choix sont accordés à l'égard des extras causés par la guerre, et pour leur payement.

KURZE NOTIZ.

DIE KRIEGSSTERBLICHKEIT IN DEN VEREINIGTEN STAATEN.

Von Robert George Hann.

1. Wenig Uebersicht der Kriegssterblichkeit in den Vereinigten Staaten.

2. Elliott's Bericht an die Sanitätskommission, dass die militärische Form der Erhebungen nicht genüge, um die Heeresmacht von der Einstellung an bis in's Feld im Auge zu behalten und ihren weiteren Bewegungen zu folgen.

3. Sodann ein kurzer Abriss der hauptsächlichsten Kriege von der Revolution an bis zum spanisch-amerikanischen Krieg, sowie eine Darlegung des Umfangs der Lebensversicherung unmittelbar vor dem Ausbruch des mexikanischen Krieges und des Bürgerkrieges.

4. Eine Konferenz von Lebensversicherungsanstalten beschloss die Auflage einer Extraprämie von 5% (jährlich) der Versicherungen nördlich vom 34. Breitengrad, und weiterer 5% von solchen südlich dieser Grenze. Diese Extraprämien waren bei Strafe des Verfalls der Versicherungsverträge zu bezahlen, jedoch vorbehaltlich der Wiedereinsetzung in den vorigen Stand.

5. *Bürgerkrieg.* — Die jährliche Sterblichkeitsrate für die ersten 15 Kriegsmonate wird gegeben, desgl. eine Betrachtung über die Zunahme derselben infolge Krankheiten und Verletzungen während der letzten sechs Monate dieses Zeitraums. Es wird dargetan, dass, obgleich anfänglich aus auserlesenen Leuten bestehend, eine Armee im Kriege infolge gedrängteren Beieinanderlebens weit mehr für Infektions- und viele andere Krankheiten empfänglich ist, als der Civilstand. Sodann werden die häufigsten Krankheiten aufgezählt.

6. *Bürgerkrieg.* — Unter Annahme der offiziellen Berichte bezüglich der Freiwilligen von Massachusetts als massgebend für die ganze Armee, gibt der Verfasser die Zahlen für die Berechnung der jährlichen Kriegsprämien für die ersten 15 Monate. Ferner Tabellen über die Stärke der Unionsstreitkräfte, aus denen die jährliche Sterblichkeitsrate per 1000 abgeleitet wird. Bericht über die Todesfälle unter den Gefangenen der Konföderierten Staaten im Süden. Dann folgen die Todesursachen im Krieg, unter Hinweis auf die Schwierigkeiten beim Vergleich der militärischen und der bürgerlichen Sterblichkeitsstatistik, welche ihren Grund

darin haben, dass erstere fortwährend gesunde Individuen an Stelle der schwächeren setzt, während die bürgerliche Statistik die letzteren mitzählt.

7. Dann folgen Tabellen über die Verluste der Armee der Vereinigten Staaten in sieben Friedensjahren. Dieselben zeigen die Entlassungen wegen eingetretener Dienstuntauglichkeit und die Sterbefälle infolge von Krankheiten aller Art, sowie den Einfluss, den das Alter auf Krankheiten und Sterblichkeit hat. Der jüngere Mann, bei Offizieren sowohl wie bei den Mannschaften, zeigt sich als höchst empfänglich für Krankheit und als geneigt zu Gebrechen. Statistische Daten des Generalwundarztes. Die Sterblichkeit unter den Soldaten ist in den letzten Jahren durch militärische Hygiene bedeutend reduziert worden.

8. *Spanisch-amerikanischer Krieg.* — Die bedeutendsten Treffen werden mit ihren Verlustlisten aufgeführt.

9. Den Freiwilligen wurden ihre Lebensversicherungen, so lange sie in den Vereinigten Staaten blieben, ohne Extraprämie aufrecht erhalten. Typhus als Krankheit und Todesursache war häufig. Diejenigen, welche die Grenze der Vereinigten Staaten überschreiten mussten, wurden besonders klassifiziert, und von ihnen die durch die grössere Sterblichkeit infolge des Krieges, — wenn eine solche überhaupt vorhanden war, — bedingten Zuschlagsprämien nach Beendigung des Krieges verlangt. Viele junge Leute gaben ihre Versicherungen lieber auf, als dass sie die Extraprämien bezahlten.

10. Sodann kommen Tabellen, welche die monatlichen Endergebnisse der offiziellen Buchungen (die betreffs der Offiziere der Regulären und der Freiwilligen, einschliesslich der N. C. O., und der Mannschaften der Regulären und Freiwilligen getrennt) enthalten. Tabelle VII gibt diese Ergebnisse lediglich bezüglich der auf dem Kriegsschauplatz befindlichen Offiziere und Mannschaften.

Im spanisch-amerikanischen Krieg trugen sich die hauptsächlichsten Kämpfe während der ersten vier Monate zu. Die Verluste waren bei den Regulären am bedeutendsten; auf den Philippinen dagegen bei den Freiwilligen.

Eine sehr grosse Sterblichkeitsrate wurde in dem auf den aktiven Dienst folgenden Jahr beobachtet, nach dessen Ablauf sie sich verringert. Nicht akklimatisierte Truppen erlagen demselben weit eher als die akklimatisierten.

11. *Besonderheiten bei Kriegsversicherungen.* — Die auf Grund der Policen sich ergebende Sterblichkeitsrate zeigt, in wie weit die Sterblichkeit im Krieg die Wahrscheinlichkeitsrate nach Massgabe der amerikanischen Tabelle sowohl als diejenige übersteigt, welche sich aus einer speziellen auf den tatsächlichen Versicherungen basierten Tabelle ergibt. Darnach sind die Tabellen für die Versicherung von Angehörigen des Heeres und der Marine berichtigt worden.

12. Eine weitere Tabelle zeigt die Zeit, während welcher die Policen in Kraft blieben nach erfolgter Ausdehnung derselben auf den Kriegsfall.

13. Die Ergebnisse nach Ablauf der Kriegsklausel zeigen die Nachwehen des Krieges, selbst wenn er nur kurz war.

14. *Versicherung von Angehörigen des Heeres und der Marine.* — Das Ergebnis 20jähriger Beobachtung der Versicherungen nach Policenjahren ist, dass die Sterblichkeit während eines Krieges die Rate auf Grund spezieller Tabellen überschreitet. Bis zu 56 Jahren ist während der ersten fünf Jahre wenig Unterschied zwischen den verschiedenen Lebensaltern. Die ausserordentliche Sterblichkeit in den ersten Jahren ist durch die grosse Anzahl von Versicherungen bedingt, welche beim Ausbruch des spanisch-amerikanischen Krieges herausgenommen worden sind.

15. Es wird auf die Nachteile gewisser Klassen hingewiesen als Ursache der Auflage von Extraprämien.

16. Schliesslich werden Vorschläge gemacht für die Auflage und die Zahlung von Kriegsprämien.

NOTES ON MORTALITY IN INDIA AND SOME OTHER TROPICAL COUNTRIES.

BY

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The rate of mortality in the British Isles, the northern portion of North America, and other countries falling within temperate limits, has now been ascertained with great accuracy, and is exhibited by various tables embracing the whole population or some portion thereof, or by the combined experience of the principal life offices. Tables of the fundamental premiums required to cover the risk for assurance of all classes of contingency have also been deduced. But once the boundary line into the semi-tropical or tropical regions of the world is crossed, the whole becomes chaos; and it is for the purpose of drawing attention to this state of matters and with the view of making a first step toward the removal of this reproach from the actuarial profession, and not with the more ambitious aim of accurately determining what the extra premiums charged in the case of each country should be, that I have prepared the present memorandum for the notice of my professional brethren.

The reasons why in the past the subject has not been more sufficiently dealt with by actuaries are probably two. *First,* the want in most cases of the requisite facts, through the backwardness or remoteness of the more recently developed countries, by reason of which the study of statistics has been neglected and life assurance likewise has only been taken advantage of to a small extent. *Secondly,* the constant change for the better in the rate of mortality which has been going on in most tropical countries during the last fifty years, whereby the data of a few years previous are after a short time no longer accurate.

In India more than any other country an improvement has been going on, and the death-rate has materially decreased, so that the old tables of Woolhouse, Samuel Brown, and others are no longer applicable to the circumstances of the present day. The causes which have contributed to this improvement are pretty well known, namely—better sanitation—more frequent change home or to the hills as the result of improved means of communication—simpler and sounder modes of life with a more moderate use of stimulants—the more frequent presence of ladies in the country—and most recently the destruction of malarial germs, or rather of the insects which play so large a part in carrying the infection from them. But though these facts are recognized, there is no general consensus of opinion as to what the extra for Indian residence ought really to be, with the consequence that the rates charged vary very considerably.

The statistics of any one office in India must of course be limited, more especially when the lives are classified severally as Europeans born and brought up in Europe, natives, Eurasians, or persons of mixed blood, and country-born Europeans; and for this reason I would strongly recommend that all the offices established in India and transacting a business

of any importance there should be asked to combine their individual experience and form a standard mortality table which would now, I think, hold the field for a good number of years, and with certain adjustments be more or less applicable, failing a better, to other Eastern countries. And I think the present time a very suitable one at which to undertake the task; for though it can hardly be said with any certainty that the lowest point has been reached in the fall of the death-rate from the high figure at which it stood fifty or more years ago, I believe that the descent will in the years to come be much more gradual, whilst the level of the more favorable returns for Great Britain and other temperate climates will, I venture to say, never be attained to.

The causes of death and incidence of mortality in India will also always vary from what these are at home, and it must especially be borne in mind that the value of selection is not in India so potent a factor as at home in reducing the death-rate during the early years of the assurance. Doubtless a sound and healthy constitution free from taint of disease will in many cases tell favorably; but a number of diseases which prevail in India, and which on the most sanguine computation it will take many years to stamp out—such as cholera, malarial, and other fevers—may attack the strongest, while fatal accidents are also probably more common than in the United Kingdom, and none of these causes can be eliminated by selection. War, too, accounts yearly for a certain number of deaths, though in this case a special extra is generally charged, as it is also sometimes for residence in an unusually malarious district.

But as the combined experience which I have suggested cannot, if undertaken, be compiled and reported without a considerable delay, it has occurred to me that it might be interesting and instructive if I were to fill up the gap meantime by the exhibition of some statistics derived from the experience of the company with which I am myself connected, which has had business relations with India (either under its present name or as the Colonial Life Assurance Company, which was transferred to the Standard) since 1846, and by a comparison of these with certain other tables.

The first exhibit which I offer is a table showing, in quinquennial groups of ages, the actual and expected mortality of lives assured with the Standard Company between 1846 and 1900 under all classes of policies.

TABLE I.

Indian Mortality Experience, Including Natives, Eurasians, etc., 1846-1900.

Age	Exposed to Risk	Expected Deaths		Actual Deaths
		English No. 1, Males	Standard E. I. Experience 1870-1885	
19	157.08	1.19	2.17	...
20-29	17221.53	160.19	213.71	214
30-39	35387.09	407.17	463.00	446
40-49	24773.21	362.64	482.36	417
50-59	8746.01	172.73	305.33	255
60-69	1545.88	62.86	90.91	80
70-79	237.67	20.02	26.52	19
80 and upwards	13.16	2.06	2.63	1
Total	88081.63	1188.86	1586.63	1432
Actual deaths to 100 expected		120.45	90.26	

The deaths recorded in the experience table named at the head of the fourth column are included in the "actual deaths," and the ratio of the total actual deaths to be expected by the experience from 1870 to 1885 indicates the improvement which has taken place since that date, so that the addition of the deaths since 1885, notwithstanding that the deaths from 1846 to 1870 are included in the column of actual deaths, has had the effect of improving the rate by about 10 per cent., the improvement having for the most part taken place between ages thirty and sixty.

The next tables exhibit the same facts for five years only, from 1895-1900:

TABLE II.

Indian Mortality Experience, Including Natives, Eurasians, etc., 1895-1900.

Age	Exposed to Risk	Expected Deaths		Actual Deaths
		English No. 1, Males	Standard E. I. Experience 1870-1885	
19	18.75	.14	.26	...
20-29	4313.42	40.14	53.49	37
30-39	8682.08	99.70	113.52	87
40-49	6085.25	89.02	118.62	89
50-59	2273.83	45.51	80.65	61
60-69	465.50	18.81	27.26	15
70-79	83.25	7.54	9.97	10
80 and upwards	7.67	1.15	1.47	...
Total	21929.75	302.01	405.24	299
Actual deaths to 100 expected		99.00	73.8	

Here it will be observed that the actual deaths, 1895-1900, are less than 75 per cent. of the deaths expected by the experience table, 1870 to 1885, and even slightly below the English Life Table.

TABLE III.

Natives Only, 1895-1900.

Age	Exposed to Risk	Expected Deaths		Actual Deaths
		English No. 1, Males	Standard E. I. Experience 1870-1885	
17-19	3.42	.03	.05	...
20-29	677.42	6.28	8.42	7
30-39	1552.17	17.86	20.32	14
40-49	1060.75	15.43	20.36	18
50-59	156.25	2.98	5.27	4
60-69	30.25	1.34	1.89	2
70 and upwards	3.00	.25	.34	1
Total	3483.26	44.17	56.65	46
Actual deaths to 100 expected		104.1	81.2	

TABLE IV.

Eurasians Only, 1895-1900.

Age	Exposed to Risk	Expected Deaths: English No. 1, Males	Expected Deaths: Standard E. I. Experience 1870-1885	Actual Deaths
18-19	2.08	.02	.03	...
20-29	60.83	.56	.76	...
30-39	267.25	3.11	3.53	...
40-49	288.00	4.23	5.66	5
50-59	141.50	2.96	5.21	7
60-69	56.42	2.36	3.39	1
70 and upwards	17.17	1.56	2.07	...
Total	833.25	14.79	20.65	13
Actual deaths to 100 expected		87.83	62.95	

TABLE V.

Country-born Europeans Only, 1895-1900.

Age	Exposed to Risk	Expected Deaths: English No. 1, Males	Expected Deaths: Standard E. I. Experience 1870-1885	Actual Deaths
18-19	.67	.00	.01	...
20-29	285.83	2.68	3.53	3
30-39	900.08	10.36	11.78	10
40-49	715.42	10.51	14.09	10
50-59	309.08	6.15	10.88	5
60-69	36.58	1.45	2.12	1
70-79	11.67	1.04	1.37	...
80 and upwards	2.08	.30	.38	...
Total	2261.41	32.49	44.16	29
Actual deaths to 100 expected		89.26	65.66	

Here it is seen that among natives, Eurasians, and country-born Europeans, as compared with the period to 1885, a very considerable improvement has taken place.

From the last three tables, so far as they go—and owing to the paucity of numbers the conclusions must not be pressed too far—it would appear that among the three classes, of natives, Eurasians, and country-borns, the death-rate is at least as favorable as amongst Europeans; but it must be fully borne in mind that the lives in question were very carefully selected under European supervision, and that in other circumstances the death-rate would in all probability be considerably greater, both because the lives would be of an inferior class and also on account of the moral risk—that is, the risk from fraud, which is always likely to arise in India if the selection of lives is not carefully guarded.

As regards the comparison with the English Life Table No. 1, founded on the experience of the whole population of England and Wales, it must be borne in mind that the normal experience of the home risks of a life company as compared with this table should aggregate not more than 80 per cent. of the expectation, when a fair proportion of newly-selected lives are included in the observations.

It has further to be observed that the deaths recorded in these tables took place—with a very few exceptions—in India, and that the rate of mortality at home is swollen by the return of invalids to this country, a matter to be kept in mind in determining Indian premiums which are

reducible to home rates on the life coming to reside in Europe. I am not aware of any full observations which have been made on the mortality of retired Indians, but the following table, founded upon a small number of observations for the years 1846-85, indicates that the extra risk is considerable.

TABLE VI.

Mortality Experience Among Lives Resident in the United Kingdom or Other Temperate Climate who had Previously Lived in India for not Less than Twelve Consecutive Months, 1846-85.

Age	Exposed to Risk	Expected Deaths		Actual Deaths
		English No. 1, Males	Carlisle	
19-29	375.17	3.55	3.15	2
30-39	2165.33	25.20	23.42	23
40-49	2493.58	36.08	35.48	40
50-59	1364.08	27.96	24.13	28
60-69	376.75	15.36	14.58	13
70-78	45.50	3.59	3.26	4
Total	6820.41	111.74	104.02	110
Actual deaths to 100 expected		98.6	106.	

Two tables of Indian mortality have been framed by the Standard Office for its own use, and premiums deduced therefrom—the first on the experience of fifteen years, from 1870 to 1885, and the more recent on the experience from 1885 to 1900. All classes of policies are included, as well as all classes of lives.

Seeing that the experience is scanty at the higher ages, owing to the great majority of the lives retiring to this country after completion of their term of service, it was found necessary in both cases to continue the curves by a junction with the H^M table, with certain additions to the rate of mortality as shown by that table, and both were adjusted by the graphic method.

The first of these tables is based on 26,848 years of life and 472 deaths. The rate of mortality at central ages for quinquennial groups is as follows:

TABLE VII.

Standard Office Indian Experience Table, 1870-85.

Age	Exposed to Risk	Deaths		Adjusted qx at Central Age	qx H^m	Ratio, Standard H^m
		Actual	Expected by 1885 Experience			
20-24	895.75	10	11.58	.0132	.0068	1.94
25-29	3475.39	44	42.54	.0122	.0069	1.77
30-34	5460.45	63	68.28	.01245	.0081	1.54
35-39	5947.12	87	81.43	.0136	.0095	1.44
40-44	4864.59	83	82.33	.01695	.0107	1.58
45-49	3230.25	68	74.21	.0232	.0137	1.70
50-54	1820.12	63	57.81	.0322	.0175	1.84
55-59	734.57	31	31.04	.0430	.0240	1.79
Total	26428.24	449	449.22			

The second table, 1885-1900, is based upon 52,219 years of life and 756 deaths. The rate of mortality in quinquennial groups is as follows:

TABLE VIII.

Standard Office Indian Experience Table, 1885-1900.

Age	Exposed to Risk	Deaths. Actual	Deaths. Expected by 1885 Experience	Adjusted qx at Central Age	qx Hm	Ratio, Standard Hm
20-24	2159.14	22	21.80	.01025	.0068	1.51
25-29	7662.09	74	74.11	.00966	.0069	1.40
30-34	10124.75	81	98.85	.00972	.0081	1.20
35-39	10089.25	139	110.47	.01090	.0095	1.15
40-44	8553.76	94	117.08	.01371	.0107	1.28
45-49	6449.51	123	113.40	.01765	.0137	1.29
50-54	4063.22	94	94.41	.02346	.0175	1.34
55-59	1724.66	56	54.21	.03200	.0240	1.34
Total	50826.38	683	684.33			

The mortality experience of Ceylon has throughout, as might be expected, shown a death-rate lower than that experienced by the Standard Company in India during the same period of observation.

Tables of net premiums have also been calculated from some of the above data; but as it would not be safe, without considerable modification, to base office premiums upon them, owing to the paucity of numbers and the somewhat select character of the lives forming the subject of the observations, I do not think it desirable to give them to the public at the present time, lest it should convey the impression that I consider the rates, as they stand, to be a fair and safe foundation on which to base office premiums to be charged in India and Ceylon.

In the West Indies, which includes most of the larger islands and also the mainland colony of Demerara, the death-rate has also improved of recent years, according to the Standard experience, as the following tables indicate; but it must be understood that the islands and mainland colonies and possessions still vary considerably from one another in respect of healthiness and rate of mortality, and did so even more in years past before attention had begun to be paid to sanitation and the stamping out of yellow and other fevers.

The following tables exhibit the Standard Office experience.

TABLE IX.

West Indian Mortality Experience, 1846-1900.

Age	Exposed to Risk	Expected Deaths. English No. 1, Males	Expected Deaths. Standard West Indian Experience to 1885	Actual Deaths
19	101.67	.77	1.37	...
20-29	4655.08	43.29	52.86	46
30-39	13041.08	139.59	198.81	178
40-49	11643.75	171.95	304.84	275
50-59	6796.17	140.96	274.25	234
60-69	2738.17	116.32	169.72	170
70-79	718.08	62.44	82.18	72
80 and upwards	75.08	12.39	15.51	18
Total	38769.08	687.61	1099.54	993
Actual deaths to 100 expected		144.41	90.31	

TABLE X.

West Indian Mortality Experience, 1895-1900.

Age	Exposed to Risk	Expected Deaths: English No. 1, Males	Expected Deaths: Standard West Indian Experience to 1885	Actual Deaths
19	19.83	.15	.27	...
20-29	1096.42	10.09	12.46	12
30-39	2203.42	25.41	36.15	24
40-49	1895.25	27.85	49.46	38
50-59	1099.33	22.82	44.83	26
60-69	416.67	17.35	25.59	25
70-79	196.08	17.48	23.11	20
80 and upwards	16.75	2.70	3.39	8
Total	6943.75	123.85	195.26	153
Actual deaths to 100 expected		123.54	78.35	

The following table contrasts the death-rate amongst colored persons with that of the whole lives assured:

TABLE XI.

West Indian Mortality Experience Amongst Colored Persons Only, 1846-85 (included in Table IX.)

Age	Exposed to Risk	Expected Deaths: English No. 1, Males	Expected Deaths: Standard West Indian Experience, 1846-1885	Actual Deaths
14-19	8.92	.06	.12	...
20-29	679.50	6.40	7.69	4
30-39	1952.50	22.57	32.31	34
40-49	2052.17	30.13	53.66	47
50-59	1014.33	20.51	40.40	49
60-69	219.92	8.81	13.21	16
70-84	36.08	3.49	4.58	5
Total	5963.412	91.97	151.97	155
Actual deaths to 100 expected		168.63	102.00	

Mauritius was for a time classified by the Standard Company under the rates of premium for home climates, and the results justified its being so placed, but ever since the introduction to the island of the somewhat virulent type of malarial fever, which has never disappeared from it, the death-rate has been much more unfavorable.

The following tables show the death-rate for the period 1846-1900, in which the years before the introduction of malaria are included, and also for 1895-1900.

TABLE XII.

Mauritius Mortality Experience, 1846-1900.

Age	Exposed to Risk	Expected Deaths: English No. 1, Males	Expected Deaths: Standard E. I. Experience, 1885	Actual Deaths
19	12.06	.09	.17	...
20-29	829.45	7.81	10.26	12
30-39	2796.45	32.39	36.73	35
40-49	2428.74	35.83	48.04	53
50-59	1367.02	28.27	49.69	52
60-69	565.49	24.02	34.26	23
70-79	167.09	14.69	19.38	17
80	14.84	2.52	3.18	4
Total	8181.14	145.62	201.71	196
Actual deaths to 100 expected		134.59	97.17	

TABLE XIII.

Mauritius Mortality Experience, 1895-1900.

Age	Exposed to Risk	Expected Deaths: English No. 1, Males	Expected Deaths: Standard E. I. Experience, 1885	Actual Deaths
29	73.34	.69	.90	...
30-39	471.41	5.48	6.21	5
40-49	461.49	6.79	9.12	11
50-59	256.68	5.43	9.54	7
60-69	136.49	5.78	8.28	3
70-79	28.74	2.49	3.29	6
Total	1428.15	26.66	37.34	32
Actual deaths to 100 expected		120.04	85.69	

In the case of China (under which head are included a few lives resident in Japan and the Straits Settlements) the record for the two periods has been as follows:

TABLE XIV.

China, etc., Mortality Experience, 1846-1900.

Age	Exposed to Risk	Expected Deaths: English No. 1, Males	Expected Deaths: Standard E. I. Experience, 1885	Actual Deaths
19	4.42	.03	.06	...
20-29	944.49	8.76	11.73	10
30-39	2269.43	26.14	29.73	27
40-49	1788.02	26.14	34.77	28
50-59	629.01	12.44	22.02	23
60-69	94.42	3.69	5.40	7
70	7.51	.69	.91	1
Total	5737.30	77.89	104.62	96
Actual deaths to 100 expected		123.24	91.76	

TABLE XV.

China, etc., Mortality Experience, 1895-1900.

Age	Exposed to Risk	Expected Deaths English No. 1, Males	Expected Deaths Standard E. I. Experience, 1885	Actual Deaths
19.....	.50	.00	.01	...
20-29.....	192.74	1.82	2.38	2
30-39.....	726.84	8.43	9.57	6
40-49.....	619.25	9.06	12.07	9
50-59.....	280.66	5.71	10.10	5
60-69.....	41.59	1.61	2.37	3
70.....	4.59	.48	.63	1
Total.....	1866.17	27.11	37.13	26
Actual deaths to 100 expected.....		95.887	70.007	

RÉSUMÉ.

NOTES SUR LA MORTALITE DANS L'INDE ET AUTRES PAYS TROPICAUX.

Par Spencer Campbell Thomson.

Après avoir mentionné l'existence de plusieurs tableaux comparatifs (quelques-uns basés sur la population entière et d'autres sur les personnes assurées sur la vie) montrant avec beaucoup d'exactitude la proportion de la mortalité aux Iles britanniques, dans la partie septentrionale de l'Amérique du Nord et autres pays de la zone tempérée, l'auteur fait observer notre manque de connaissances similaires sur la mortalité dans les régions semi-tropicales et tropicales et il en attribue la cause à la rareté des statistiques et à l'amélioration constante qui s'est produite, depuis un certain nombre d'années, dans les pays les plus tropicaux, sur la proportion de la mortalité.

L'amélioration dont il s'agit est très marquée dans l'Inde et est due à des causes multiples, entre autres: 1° à de meilleures mesures sanitaires; 2° à des changements de domicile plus fréquents, soit en retournant au pays natal, soit en allant dans les endroits montagneux; 3° à des genres de vie plus simples et plus hygiéniques; 4° à la présence plus fréquente des femmes; 5° à la destruction des insectes producteurs des germes de la malaria. M. Thomson croit que l'amélioration, à l'avenir, sera moins sensible et plus graduelle, et il recommande fortement aux divers établissements faisant des affaires dans l'Inde de concentrer leurs efforts et leur expérience pour la création de tableaux exacts de mortalité s'appliquant aux classes suivantes: (A) Européens, (B) Indigènes, (C) Eurasiens, c'est-à-dire des personnes de sang mélangé, et (D) des personnes nées dans l'Inde de parents européens. Il est d'avis qu'un pareil travail serait utilisable pendant plusieurs années et, avec quelques modifications, pourrait être appliqué à d'autres contrées orientales.

Les causes de mort dans l'Inde varient de celles de l'Angleterre, et par suite du nombre d'accidents entraînant la mort et des maladies endémiques, telles que le choléra, la malaria et autres fièvres, qui brisent les plus fortes constitutions, la sélection médicale n'atteint pas le même effet de faire baisser la proportion de la mortalité, pendant les premières années d'assurance, que dans les climats tempérés. La moyenne est aussi augmentée par la guerre, mais l'auteur explique qu'une prime supplémentaire est généralement imposée pour ce risque, de même que pour les résidences dans des régions très malsaines.

L'auteur donne ensuite plusieurs tableaux montrant l'expérience dans l'Inde de sa propre compagnie et comparant les décès qui ont eu lieu avec ceux prévus par (1) le Tableau Vital Anglais (hommes) No. I, et (2) le Tableau d'Expérience pour l'Inde Orientale de la Standard Life Assurance Company, 1870 à 1885. Dans ces tableaux, toutes les vies du même âge sont groupées ensemble sans égard pour la durée de la police.

Le tableau No. I donne l'expérience indienne complète de la compagnie de 1846 à 1890 et comprend les Européens, les indigènes, les Eurasiens et les Euro-

péens nés aux Indes. Les décès enregistrés et ceux auxquels on devait s'attendre sont donnés dans les tableaux ci-dessus pour des groupes d'âge décennaux. Les décès sont de 120 pour cent sur les morts prévues par le tableau vital anglais No. I et de 90 pour cent seulement sur celles attendues par l'expérience de la "Standard" pour les années 1870 à 1885. Comme les morts enregistrées comprenaient celles de la période s'étendant de 1846 à 1870, il est évident qu'une grande amélioration a eu lieu depuis 1885, et elle s'est généralement produite entre l'âge de 30 et 60 ans.

Le tableau No. II donne la même information que le tableau No. I, mais pour la période de 1895 à 1900 seulement. Dans ce dernier cas, les morts enregistrées sont légèrement en dessous de celles prévues dans le tableau vital anglais, tandis qu'elles sont de 75 pour cent moindres que celles attendues par le tableau de la "Standard" pour les années 1870 à 1885.

Les tableaux III, IV et V donnent les informations similaires pour les indigènes, les Eurasiens et les Européens de naissance indienne, respectivement, pour la période de cinq ans de 1895 à 1900. Le nombre des risques dans chacune des ces classes est léger et la moyenne de la mortalité paraît être au moins aussi favorable que chez les Européens. L'auteur cite le fait que les vies en question dans ces trois tableaux furent très rigoureusement examinées sous la surveillance européenne et que, sans cette précaution, la moyenne de la mortalité eût été considérablement plus forte.

Il appelle ensuite l'attention sur le fait que l'expérience normale des risques nationaux d'une compagnie d'assurance sur la vie ne devrait pas excéder 80 pour cent du chiffre prévu par le tableau anglais No. I.

A quelques exceptions près, les décès constatés dans ces tableaux ont eu lieu dans l'Inde, et la moyenne de la mortalité en Angleterre est augmentée par le retour des malades, point qui ne doit pas être perdu de vue en fixant les primes payables seulement aussi longtemps que l'assuré a sa résidence aux Indes.

L'auteur passe ensuite aux résultats de l'expérience de sa compagnie, de 1846 à 1885, sur la mortalité parmi les personnes résidant sous des climats tempérés qui avaient précédemment vécu dans l'Inde pendant au moins douze mois consécutifs. Les morts enregistrées furent de 99 pour cent sur celles prévues par le tableau vital anglais No. I, et de 106 pour cent sur celles prévues par le tableau de Carlisle. Ces faits sont donnés dans le tableau No. VI, mais le chiffre total des risques à craindre fut inférieur à 7000.

L'auteur déclare que son bureau a établi deux tableaux sur la situation de la mortalité indienne: le premier d'après son expérience pendant les quinze années écoulées de 1870 à 1885, et le second d'après l'expérience des cinq années suivantes, c'est-à-dire jusqu'en 1890. Toutes les classes de polices et toutes les classes de vie ont été comprises dans ces statistiques.

Comme la grande majorité des assurés sont retournés dans le Royaume-Uni après l'expiration de leur terme de service, l'expérience a été faible pour les âges les plus avancés, et les courbes se sont continuées par une jonction avec le tableau H^m avec certaines additions à la moyenne de mortalité démontrée par ce tableau. Les tableaux VII et VIII donnent, entre autres renseignements, les proportions vérifiées de la mortalité aux âges moyens par groupes quinquennaux pour ces deux tableaux de mortalité.

L'expérience de mortalité de la compagnie de l'auteur à Ceylon a été plus favorable que son expérience dans l'Inde.

Les tableaux IX et X donnent l'expérience dans les Antilles des succursales de la "Standard" pour les périodes 1846 à 1900 et 1895 à 1900, respectivement. Les morts constatées, 1846 à 1900, ont été de 90 pour cent sur les morts prévues, d'après l'expérience aux Antilles de la "Standard" jusqu'en 1883, alors que les décès enregistrés de 1895 à 1900 ont été de moins de 80 pour cent de ceux prévus par le même tableau. Ces mêmes décès ont été de 144 et 124 pour cent, respectivement, sur ceux prévus par le tableau vital anglais No. I.

Cette expérience dans les Antilles a été tirée de la plupart des plus grandes îles, ainsi que de la colonie continentale de Demerara. On verra qu'il y a eu amélioration, là aussi; mais l'auteur cite le fait que les moyennes de la mortalité dans les différentes îles et dans la colonie continentale varient encore considérablement d'un point à l'autre. Le tableau XI montre que la mortalité parmi les nègres des Antilles, de 1846 à 1885, a été de 102 pour cent sur les décès prévus, d'après l'expérience aux Antilles de la "Standard" (1846-1885).

Le tableau XII montre que les morts enregistrées dans l'île Maurice de 1846 à 1900 ont été de 97 pour cent sur les morts prévues, d'après l'expérience dans l'Inde orientale de la "Standard" en 1885, et le tableau XIII établit que les décès dans cette île, pendant la période de 1895 à 1900, ont été de 86 pour cent sur ceux prévus dans le même tableau.

Les tableaux XIV et XV montrent que les morts constatées en Chine pen-

dant les périodes de 1846 à 1890 et de 1895 à 1900 ont été respectivement de 92 et 70 pour cent sur les morts prévues, d'après l'expérience dans l'Inde Orientale de la "Standard" en 1885. Ces deux derniers tableaux comprennent quelques personnes résidant au Japon et dans les *Straits Settlements*, mais l'expérience totale est limitée.

KURZE NOTIZ.

BEMERKUNGEN ÜBER DIE STERBLICHKEIT IN INDIEN UND ANDEREN TROPISCHEN LÄNDERN.

Von Spencer Campbell Thomson.

Der Verfasser erwähnt, dass für die britischen Inseln, den nördlichen Teil von Amerika und andere Länder der gemässigten Zone genaue Sterblichkeitstabellen existieren, welche zum Teil nach der Bevölkerungszahl, zum Teil nach der Zahl der versicherten Leben berechnet sind und bedauert das Fehlen einer ähnlich genauen Sterblichkeitsstatistik für tropische und subtropische Länder; dies ist in der mangelnden Statistik betreffs dieser Länder überhaupt und in der beständigen Abnahme der Sterblichkeitsrate daselbst bedingt.

Die verringerte Sterblichkeit ist besonders auffallend in Indien und wird u. A. zurückgeführt auf (1) bessere sanitäre Einrichtungen, (2) öfteren Wohnungswechsel, entweder nach England zurück oder in's Gebirge, (3) einfachere und vernünftigere Lebensweise, (4) die häufigere Anwesenheit der Frauen, und (5) die Ausrottung von Malaria verbreitenden Insekten.

Der Verfasser glaubt, dass in Zukunft diese Verminderung weniger auffallend und plötzlich sein wird, und er erachtet den jetzigen für den geeignetsten Zeitpunkt für die indischen Versicherungsgesellschaften, ihre Erfahrungen zu vergleichen und für die folgenden Bevölkerungsklassen Sterblichkeitstabellen aufzustellen: (A) Europäer, (B) Eingeborene, (C) Eurasier, d. h. Mischlinge, und (D) Solche, welche von europäischen Eltern in Indien geboren worden sind. Er ist der Meinung, dass solche Tabellen für Jahre hinaus Gültigkeit haben werden, und dass dieselben mit geringen Abweichungen auch auf andere Länder des Ostens Anwendung finden könnten.

Die Todesursachen und ihre Heftigkeit sind in Indien von denen in Grossbritannien verschieden, und eine genaue örtliche Auswahl ist hier nicht so geeignet, die Sterblichkeitsrate in den ersten Versicherungsjahren niedriger zu halten, wie das in England der Fall ist; denn in Indien sind Unglücksfälle mit tötlichem Ausgang weit häufiger, und Cholera, Malaria, und andere Fieberkrankheiten befallen hier auch die Stärksten und Gesundesten. Kriege tragen das Ihrige dazu bei, die Sterblichkeitsrate zu erhöhen, aber für dieses Risiko wird,—wie der Verfasser bemerkt,—gewöhnlich eine Extraprämie verlangt. Das ist auch dann der Fall, wenn der Versicherte ein ganz besonders von Malaria heimgesuchtes Gebiet bewohnt.

Der Verfasser führt verschiedene Tabellen an, welche die Erfahrungen seiner Gesellschaft im indischen Versicherungsgeschäft dartun, sowie die Zahl der wirklichen Todesfälle im Verhältnis zu denen, die man berechnete, und zwar (1) nach der englischen Mortalitätstabelle für Männer, und (2) nach den indischen Erfahrungstabellen der Standard Life Assurance Company von 1870 bis 1885. In diesen Tabellen sind Gleichaltrige ohne Rücksicht auf die Zeitdauer der Policen zusammen gruppiert.

Tabelle I zeigt die gesammten Erfahrungen der Gesellschaft in Indien von 1846 bis 1890, und berücksichtigt Europäer, Eingeborene, Mischlinge und Europäer indischer Geburt. Die wirkliche sowie die nach den obigen Tabellen berechnete Zahl der Todesfälle ist in Gruppen von je zehn Jahren geordnet. Die wirkliche Zahl betrug 120 Prozent der nach der englischen Tabelle No. I berechneten, aber nur 90 Prozent der nach den Erfahrungen der Standard in den Jahren 1870-1885 berechneten. Da nun die wirkliche Zahl der Todesfälle alle in der Zeit von 1846 bis 1870 eingetretenen mit einbegreift, so ist die Verringerung seit 1885 um so bemerkenswerter; diese Verringerung betrifft hauptsächlich die Versicherungsalter zwischen 30 und 60.

Tabelle II behandelt denselben Gegenstand wie Tabelle I, jedoch nur für die fünf Jahre von 1885 bis 1890. In dieser Periode ist die wirkliche Sterblichkeit etwas geringer als die nach den englischen Tabellen berechnete, und beträgt nur 75 Prozent derjenigen der Standard Tabellen für 1870 bis 1885.

Tabellen III, IV und V beziehen sich je eine auf Eingeborene, Eurasier (Mischlinge) und Europäer indischer Geburt, und zwar während der fünf Jahre von 1885 bis 1890. Das Risiko ist gering für diese drei Klassen, und die Sterblichkeit ist zum mindesten ebenso gering als für Europäer. Der Verfasser weist aber darauf hin, dass die Versicherten in diesen drei Tabellen unter Aufsicht von Europäern besonders vorsichtig ausgesucht wurden, und dass ohne diese Massregel die Sterblichkeitsrate ohne Zweifel bedeutend höher sein würde. Sodann erwähnt er, dass das normale inländische Risiko einer Lebensversicherungsgesellschaft 80 Prozent des von den englischen Tabellen berechneten nicht übersteigen dürfe.

Mit wenigen Ausnahmen ereigneten sich die Todesfälle in Indien; die Sterblichkeitsziffer in England wird erhöht durch die Rückkehr von Invaliden; und dieser Punkt muss besonders berücksichtigt werden, wenn es sich um die Feststellung der Prämie handelt, welche zu bezahlen ist, so lange der Versicherte in Indien wohnt.

Weiterhin berichtet der Verfasser über die Erfahrungen seiner Gesellschaft zwischen 1846 und 1885 bezüglich der Sterblichkeit unter den Bewohnern der gemässigten Zone, welche sich vorher mindestens zwölf Monate lang in Indien aufgehalten hatten. Die wirkliche Ziffer war 99 Prozent der nach den englischen Tabellen und 106 Prozent der nach den Carlisle'schen Tabellen. Diese Tatsachen zeigt Tabelle VI, doch ist die Zahl der unter das Risiko fallenden geringer als 7000.

Verfasser erwähnt sodann, dass seine Gesellschaft zwei Sterblichkeitstabellen für Indien aufgestellt hat; die erste nach ihren Erfahrungen von 1870 bis 1885, und die zweite nach den Erfahrungen der folgenden fünf Jahre bis 1900. Diese Erfahrungen schliessen alle Klassen von Policen und Versicherten ein.

Da die Mehrzahl der Versicherten nach beendeter Dienstzeit nach Grossbritannien zurückkehrte, so waren diese Erfahrungen bezüglich der höheren Lebensalter nur sehr gering, und die Kurve wurde in Verbindung mit der H^m-Tabelle fortgeführt, unter gewissen Zusätzen zu der in dieser Tabelle gegebenen Sterblichkeitsrate. Tabellen VII und VIII zeigen u. A. die angepasste (abgeänderte) Sterblichkeitsrate für mittlere Lebensalter in Fünfjahrperioden,—nach diesen zwei Sterblichkeitstabellen.

Die Gesellschaft des Verfassers hat in Ceylon günstigere Erfahrungen bezüglich der Sterblichkeit gemacht als in Indien.

Die Tabellen IX und X geben die Erfahrungen der Standard Co. in Westindien während der Zeit von 1845 bis 1900 (Tabelle IX) und 1895 bis 1900 (Tabelle X). Die wirkliche Zahl der Todesfälle von 1846 bis 1900 war 90 Prozent der nach den Erfahrungen der Standard bis 1885 berechneten, während von 1895 bis 1900 die wirkliche Zahl weniger als 80 Prozent der nach derselben Tabelle berechneten betrug. Sie betrugen aber 144 Prozent, resp. 124 Prozent der nach der englischen Tabelle berechneten.

Diese Erfahrungen wurden zunächst auf den grösseren Inseln und in der Festlandkolonie Demerara gemacht. Eine Besserung zeigt sich auch hier, aber der Verfasser weist darauf hin, dass die Sterblichkeit auf den einzelnen Inseln und in der Festlandkolonie doch immerhin beträchtlich variiere. Tabelle XI zeigt, dass unter der farbigen Bevölkerung von Westindien während der Jahre 1846 bis 1885 die Sterblichkeit 102 Prozent der nach der Standard Tabelle für diese Zeit berechneten betrug.

Tabelle XII zeigt, dass in Mauritius die wirkliche Zahl der Sterbefälle 97 Prozent der nach den Standard-Erfahrungen in Ostindien 1885 berechneten betrug; während nach Tabelle XIII die Todesfälle von 1895 bis 1900 nur 86 Prozent der nach derselben Tabelle berechneten betrugen.

Tabellen XIV und XV weisen nach, dass die wirkliche Zahl der Sterbefälle in China von 1846 bis 1890 und von 1895 bis 1900 92 Prozent, resp. 70 Prozent der nach den ostindischen Erfahrungen (1885) berechneten betrug. Die letzteren beiden Tabellen umfassen auch einige wenige Versicherte in Japan oder den "Straits Settlements," doch sind die gesammten Erfahrungen höchst beschränkter Natur.

ON THE MORTALITY OF THE JAPANESE.

BY

TSUNETA YANO.

Secretary, Institute of Actuaries of Japan.

We are, at the present time, destitute of the complete materials by means of which we can calculate the death rate of the Japanese. The only material to depend upon is the statistics of population compiled by the Imperial Government, which is reported by the local prefectures. If we could inquire into the past experiences of all the life insurance companies in Japan, we should readily be able to collect the full material which is especially called for; but in the present state of our life insurance business, which has been developing only a decade hence, the greater part of the insured is of four or five years' duration, and consequently companies' statistical reports cannot afford us a good material; there remains no other way than to refer to the statistics of population in order to calculate the mortality of the Japanese.

The statistics of population are annually published by the Statistical Bureau, Imperial Cabinet. The number living and dying in each year of age can be calculated from the register book of people prepared in district offices since the fifth year of Meiji (1872). Until to-day, Japan has no census in the strict sense of the word. The real census will be tried in 1905. At any rate, the register book of people, which is officially prepared according to the provisions of law, must be the source of comparatively reliable material.

In Japan, emigration or immigration is of rare occurrence. The fluctuations of population, therefore, is almost entirely the consequence of births and deaths. So the material above referred to will, if correctly arranged and modified, be available in constructing a mortality table. If in a community which is undisturbed by emigration or immigration, the number living in each year of age is known for succeeding years, a mortality table can be easily made by comparing the number living at age x with that of at age $x + 1$ (Vital Method). Though the register book in Japan has been in use for thirty years, yet many alterations and modifications having been made in course of these years, some errors in the registration are inevitably left uncorrected, while domicile being newly given to non-domiciled people (there were some people who had no domicile, especially in the early year of Meiji, their births having been unreported to the district office), the material sometimes presents a ludicrous effect that the number living at age x in a certain year is comparatively little less than the number living at age $x + 1$, next year. Consequently, I have adhered in constructing my new table to the materials during eight years (1891-98) which seemed most reliable, setting aside the materials before 1890 and that of after 1899.

Even if I refer to the number of survivors in these eight years (1891-98), unavoidable disagreement in figure will be found in some degree by comparing the number of deaths reported to the Imperial Government with the difference between the number of survivors in the succeeding two years. This obliged me to use the aggregated number of survivors, say

$\wedge_x$, and deaths, say, $\triangle_x$ in these eight years. Besides, in Japan, burial cannot be done without the doctor's death report, which, after being examined with the register book of people in district offices, is sent to the Sanitary Bureau in the Home Department. So the number $\triangle_x$ obtained from the report of the same bureau must be taken as a reliable material too, for those who intend to construct a table of mortality.

Inconvenience was, however, felt in course of my process. $\wedge_x$ table shows the number living in each year of age by birth, while $\triangle_x$ table is arranged by age at the time of death, thus two tables differing in the

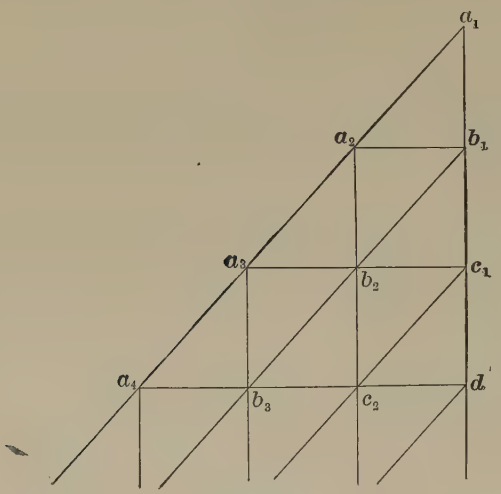

Figure 1.

arrangement of age. Now let me try to explain the course of my work. If, in Fig. 1, $a_1\ a_2$ represents the number of births in a certain year, and $a_2\ a_3$, the number of births just one previous year, then $a_1\ b_1$ will show the number of survivors under one year of age, and $b_1\ c_1$ the number of survivors under two years of age. The number shown in table $\wedge_x$ corresponds to $a_1\ b_1 (\wedge_1)$, $b_1\ c_1\ (\wedge_2)$, $c_1\ d (\wedge_3)$, etc. So, if for the survivors, $a_1\ b_1, b_1\ c_1, c_1\ d$, the number of deaths in triangle $a_1\ a_2\ b_1$, in quadrilaterals $a_2\ b_1\ c_1\ b_2$ and $b_2\ c_1\ d\ c_2$ be respectively known, the process is extremely easier; but as $\triangle_x$ are arranged according to age at the time of deaths, some adequate modifications must necessarily be executed.

Here I have graphically arranged the quadrilateral $b_1\ b_2\ c_2\ d$ as in Fig. 2, this arrangement never changing the value itself.

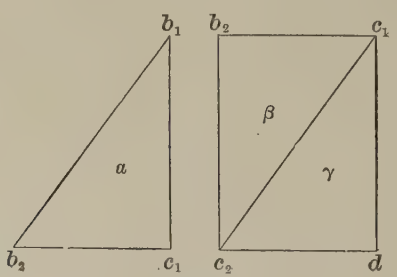

Figure 2.

Let α, β, γ represent the number of deaths happened in triangles $b_1\ b_2\ c_1, c_1\ b_2\ c_2, c_1\ c_2\ d$ respectively, and supposing the case when $b_1\ c_1$ is in equal length with $b_2\ c_2$, then q_{b-1} can be calculated by the following equation

$$q_{b-1} = (\alpha + \beta) : \frac{(b_1 c_1 + \alpha) + (c_1 d + \gamma + \beta + \alpha)}{2}$$

If I replace β for γ, $x + \alpha$ being equal to Δ_b, the equation becomes,

$$q_{b-1} = \Delta_b : \left(\frac{b_1 c_1 + c_1 d}{2} + \Delta_b\right)$$

In fact, it is believed that there is scarcely any difference between β and γ, $b_1\ c_1$ and $b_2\ c_2$, except in case of earlier or higher ages. Even though a little difference exists between them, that influence may be slightened by equally dividing their sum. Finally, I have calculated q'_x and l'_x from the following equation

$$q'_{x-1} = \Delta_x : \left(\frac{\Delta_x + \Delta_{x+1}}{2} + \Delta_x\right)$$

In case of earlier or higher ages, however, this assumption may not be in strict accordance with fact. But when I consider that there are some people of very early ages whose births remain unreported to the office, and consequently are not written on the register book, while, on the other hand, the number of deaths at higher ages is not quite reliable in our country, as is also usual in Western countries, this fact causes me to believe that so far as the earlier or higher ages are concerned, there will be no value in expending so much labor in making close inquiry into the material. Of course, as to the difference arising every year from unreported births, and other irregularity in figures, I have made a proper modification which seemed to me most reasonable.

Next I have referred to Mr. J. Karup's "New Mechanical Method of Graduation," reported at the Second International Actuarial Congress, from age twenty-one to eighty-five, first taking q'_x and second, log q''_x in the following formula

$$\begin{aligned} 625\ Z_x = {} & 125\ u_x + 114\ (u_{x+1} + u_{x-1}) + 87\ (u_{x+2} + u_{x-2}) \\ & + 53\ (u_{x+3} + u_{x-3}) + 21\ (u_{x+4} + u_{x-4}) \\ & - 8\ (u_{x+6} + u_{x-6}) - 9\ (u_{x+7} + u_{x-7}) \\ & - 6\ (u_{x+8} + u_{x-8}) - 2\ (u_{x+9} + u_{x-9}). \end{aligned}$$

Above age eighty-six, I have found the values b and c by formula

$$\Sigma_{56}^{70} q_x = bc^{56}\frac{c^{10} - 1}{c - 1}$$

$$\Sigma_{71}^{85} q_x = bc^{71}\frac{c^{10} - 1}{c - 1}, \text{ by applying } q_x = bc^x.$$

Then log q_{85} is continuously added by log c until log $q = 0$.

In earlier ages, Mr. Landré's "Graduation by Minimum Theory" is applied, except when $x = 0$, in which case q_0 is written q'_0 unmodified. Especially at age 1

$$70\ Z_x = 69\ u_x + 4\ u_{x+1} - 6u_{x+2} + 4\ u_{x+3} - u_{x+4}$$

at ages 2 and 3

$$70\ Z_x = 4\ u_{x-1} + 54\ u_x + 24\ u_{x+1} - 16\ u_{x+2} + 4\ u_{x+3}$$

at ages 4 and 20

$$35\ Z_x = 17\ u_x + 12\ (u_{x+1} + u_{x-1}) - 3\ (u_{x+2} + u_{x+2})$$

Here I will stop my pen, stating that the actual death rate of our native life insurance companies exceeds the expected rate. Only two or three companies enjoy the exception. Especially above age forty, even the death rate of my table lies below the experienced rate of mortality.

FEMALE.

x	Δx Living under age x at end of 1891–98	Δx Death under age x during 1891-98	x	Δx Living under age x at end of 1891–98	Δx Death under age x during 1891-98
1	4,605,984	682,306	57	1,227,464	25,825
2	4,228,277	179,649	58	1,181,477	26,791
3	4,046,429	115,829	59	1,138,704	27,452
4	3,915,447	76,016	60	1,110,408	30,306
5	3,789,903	52,232	61	1,082,198	31,536
6	3,715,820	36,032	62	1,069,577	33,601
7	3,650,366	27,165	63	1,060,952	35,438
8	3,591,248	22,160	64	1,033,534	37,056
9	3,600,154	18,288	65	997,643	38,342
10	3,579,397	16,965	66	960,351	40,267
11	3,543,375	15,602	67	922,231	41,467
12	3,500,850	15,019	68	868,959	42,617
13	3,500,209	15,883	69	819,471	43,086
14	3,476,708	16,589	70	765,439	45,389
15	3,456,798	18,500	71	712,890	44,134
16	3,452,402	20,275	72	655,055	45,790
17	3,395,828	22,759	73	603,120	45,140
18	3,341,023	24,474	74	549,938	44,259
19	3,267,681	26,092	75	490,130	43,479
20	3,167,564	27,347	76	438,552	41,628
21	3,042,168	26,695	77	388,052	40,701
22	2,904,986	26,602	78	337,585	39,227
23	2,794,222	26,229	79	297,980	36,959
24	2,703,445	25,704	80	257,616	34,618
25	2,618,552	25,822	81	218,541	31,473
26	2,535,890	24,628	82	183,762	29,449
27	2,481,671	24,613	83	154,417	26,091
28	2,457,438	24,080	84	128,769	23,002
29	2,409,857	24,099	85	106,001	20,118
30	2,358,084	24,055	86	86,248	17,063
31	2,288,128	22,682	87	69,597	14,464
32	2,207,547	22,440	88	55,317	11,655
33	2,158,971	22,673	89	41,301	9,188
34	2,138,712	22,477	90	30,332	6,915
35	2,090,210	22,743	91	22,066	5,052
36	2,047,270	22,606	92	15,411	3,686
37	2,042,382	23,618	93	10,183	2,619
38	2,061,157	23,907	94	6,641	1,652
39	2,090,823	24,355	95	3,972	1,079
40	2,093,463	24,992	96	2,157	716
41	2,052,964	24,215	97	1,414	406
42	2,013,653	24,647	98	920	257
43	1,991,283	23,653	99	610	168
44	1,962,104	23,176	100	426	110
45	1,933,224	23,128	101	280	58
46	1,854,721	22,227	102	207	40
47	1,825,394	22,224	103	130	34
48	1,769,382	22,280	104	74	17
49	1,750,682	23,178	105	51	3
50	1,699,030	24,137	106	29	10
51	1,628,403	23,540	107	20	4
52	1,567,701	24,417	108	12	0
53	1,489,549	24,209	109	7	0
54	1,449,183	24,687	110	4	1
55	1,344,099	25,006	111	1	..
56	1,287,455	25,202	112	1	..

MALE.

x	Λx Living under age x at end of 1891–98	Δx Death under age x during 1891-98	x	Λx Living under age x at end of 1891–98	Δx Death under age x during 1891-98
1	4,722,636	792,016	57	1,248,994	34,153
2	4,327,681	198,170	58	1,193,338	35,052
3	4,133,367	123,423	59	1,132,361	35,551
4	4,004,189	80,809	60	1,092,341	39,227
5	3,873,181	53,805	61	1,051,119	39,428
6	3,789,748	37,778	62	1,032,010	42,000
7	3,722,722	29,053	63	1,014,166	43,308
8	3,654,362	23,867	64	976,241	44,552
9	3,663,459	19,283	65	932,698	45,876
10	3,643,181	17,900	66	886,714	46,526
11	3,603,312	16,152	67	844,213	47,496
12	3,555,448	15,051	68	786,120	48,009
13	3,552,901	14,672	69	730,996	47,293
14	3,537,557	15,084	70	671,709	48,928
15	3,524,549	16,562	71	614,225	46,614
16	3,525,256	18,292	72	556,557	46,487
17	3,474,266	20,482	73	503,111	45,299
18	3,416,925	23,046	74	453,017	43,086
19	3,348,580	24,100	75	395,070	41,389
20	3,247,744	25,640	76	345,821	38,599
21	3,121,278	24,965	77	299,534	36,050
22	2,983,941	24,906	78	254,063	33,808
23	2,863,735	24,557	79	219,923	30,453
24	2,774,679	23,758	80	184,749	28,095
25	2,688,013	24,398	81	152,217	24,592
26	2,611,171	22,533	82	124,378	22,045
27	2,564,097	22,522	83	101,591	18,759
28	2,546,344	21,995	84	81,869	16,376
29	2,499,583	21,149	85	66,004	13,709
30	2,448,450	21,962	86	52,100	11,459
31	2,379,265	20,105	87	41,040	9,214
32	2,300,222	19,661	88	31,971	7,274
33	2,249,927	19,529	89	23,477	5,535
34	2,235,710	19,499	90	16,867	4,010
35	2,189,176	20,253	91	11,961	2,751
36	2,146,960	19,825	92	8,317	1,986
37	2,150,653	21,062	93	5,444	1,292
38	2,178,466	21,890	94	3,462	832
39	2,218,444	22,393	95	2,007	466
40	2,230,018	24,706	96	1,034	307
41	2,198,083	24,388	97	589	181
42	2,153,448	26,069	98	411	116
43	2,133,363	26,005	99	281	67
44	2,106,033	26,432	100	158	35
45	2,067,578	28,369	101	90	28
46	2,004,440	28,152	102	60	13
47	1,959,802	28,468	103	40	4
48	1,891,831	29,463	104	21	5
49	1,871,011	30,757	105	18	0
50	1,807,303	33,020	106	9	3
51	1,729,784	31,686	107	6	5
52	1,656,490	32,523	108	6	1
53	1,576,232	33,122	109	3	1
54	1,501,936	33,091	110	3	1
55	1,390,724	33,482	111	1	..
56	1,322,310	33,444			

FEMALE.

x	l'_x Not graduated	l_x Graduated	d'_x Not graduated	d_x Graduated	q'_x Not graduated	q_x Graduated	$\mathring{e}'_x$ Not graduated	$\mathring{e}_x$ Graduated
0	100,000	100,000	13,380	13,380	0.13380	0.13380	44.4	44.3
1	86,620	86,620	3,604	3,605	.04161	.04162	50.1	50.1
2	83,016	83,015	2,347	2,344	.02827	.02824	51.3	51.3
3	80,669	80,671	1,561	1,570	.01935	.01946	51.8	51.7
4	79,108	79,101	1,086	1,073	.01373	.01356	51.8	51.8
5	78,022	78,028	756	763	.00969	.00978	51.5	51.5
6	77,266	77,265	576	574	.00745	.00743	51.0	51.0
7	76,690	76,691	470	462	.00613	.00603	50.4	50.3
8	76,220	76,229	386	394	.00507	.00517	49.7	49.6
9	75,834	75,835	359	353	.00474	.00466	48.9	48.9
10	75,475	75,482	333	333	.00441	.00441	48.2	48.1
11	75,142	75,149	321	325	.00427	.00432	47.4	47.3
12	74,821	74,824	339	334	.00453	.00446	46.6	46.5
13	74,482	74,490	355	360	.00476	.00483	45.8	45.7
14	74,127	74,130	395	391	.00533	.00528	45.0	45.0
15	73,732	73,739	434	439	.00589	.00595	44.2	44.2
16	73,298	73,300	492	487	.00671	.00665	43.5	43.5
17	72,806	72,813	535	537	.00735	.00738	42.8	42.7
18	72,271	72,276	581	584	.00804	.00808	42.1	42.1
19	71,690	71,692	626	619	.00873	.00863	41.4	41.4
20	71,064	71,073	632	639	.00890	.00899	40.8	40.8
21	70,432	70,434	651	652	.00925	.00925	40.2	40.1
22	69,781	69,782	659	663	.00945	.00950	39.5	39.5
23	69,122	69,119	661	668	.00957	.00966	38.9	38.9
24	68,461	68,451	679	669	.00992	.00977	38.3	38.2
25	67,782	67,782	659	667	.00972	.00984	37.6	37.6
26	67,123	67,115	663	664	.00987	.00989	37.0	37.0
27	66,460	66,451	651	660	.00980	.00993	36.4	36.3
28	65,809	65,791	659	657	.01001	.00998	35.7	35.7
29	65,150	65,134	668	655	.01025	.01006	35.1	35.1
30	64,482	64,479	644	654	.00999	.01015	34.4	34.4
31	63,838	63,825	649	655	.01017	.01027	33.8	33.8
32	63,189	63,170	660	658	.01044	.01042	33.1	33.1
33	62,529	62,512	658	663	.01052	.01060	32.5	32.4
34	61,871	61,849	673	669	.01087	.01081	31.8	31.8
35	61,198	61,180	669	674	.01093	.01102	31.2	31.1
36	60,529	60,506	689	679	.01138	.01123	30.5	30.5
37	59,840	59,827	681	684	.01138	.01143	29.8	29.8
38	59,159	59,143	681	685	.01151	.01159	29.2	29.1
39	58,478	58,458	696	685	.01191	.01172	28.5	28.5
40	57,782	57,773	680	681	.01177	.01179	27.9	27.8
41	57,102	57,092	694	675	.01216	.01183	27.2	27.1
42	56,408	56,417	667	669	.01182	.01185	26.5	26.5
43	55,741	55,748	656	662	.01176	.01188	25.8	25.8
44	55,085	55,086	664	659	.01206	.01196	25.1	25.1
45	54,421	54,427	650	660	.01194	.01212	24.4	24.4
46	53,771	53,767	657	666	.01221	.01239	23.7	23.7
47	53,114	53,101	664	679	.01250	.01278	23.0	23.0
48	52,450	52,422	695	697	.01326	.01329	22.3	22.2
49	51,755	51,725	740	719	.01430	.01391	21.6	21.5
50	51,015	51,006	741	747	.01452	.01464	20.9	20.8
51	50,274	50,259	790	775	.01572	.01543	20.2	20.1
52	49,484	49,484	802	810	.01621	.01637	19.5	19.4
53	48,682	48,674	846	845	.01737	.01737	18.8	18.8
54	47,836	47,829	892	884	.01865	.01848	18.1	18.1
55	46,944	46,945	922	926	.01965	.01972	17.5	17.4
56	46,022	46,019	966	971	.02099	.02111	16.8	16.8
57	45,056	45,048	1,017	1,021	.02257	.02267	16.2	16.1
58	44,039	44,027	1,049	1,073	.02383	.02438	15.5	15.5
59	42,990	42,954	1,156	1,128	.02690	.02625	14.9	14.8
60	41,834	41,826	1,191	1,182	.02848	.02826	14.3	14.2
61	40,643	40,644	1,243	1,236	.03058	.03042	13.7	13.6
62	39,400	39,408	1,290	1,290	.03273	.03274	13.1	13.0

FEMALE.—Continued.

x	l'_x Not graduated	l_x Graduated	d'_x Not graduated	d_x Graduated	q'_x Not graduated	q_x Graduated	$\mathring{e}'_x$ Not graduated	e_x Graduated
63 ...	38,110	38,118	1,341	1,344	0.03520	0.03525	12.5	12.5
64 ...	36,769	36,774	1,386	1,397	.03769	.03799	12.0	11.9
65 ...	35,383	35,377	1,451	1,451	.04102	.04101	11.4	11.4
66 ...	33,932	33,926	1,501	1,505	.04425	.04437	10.9	10.8
67 ...	32,431	32,421	1,559	1,559	.04806	.04809	10.4	10.3
68 ...	30,872	30,862	1,592	1,610	.05157	.05218	9.9	9.8
69 ...	29,280	29,252	1,694	1,658	.05785	.05668	9.4	9.3
70 ...	27,586	27,594	1,672	1,698	.06061	.06154	8.9	8.8
71 ...	25,914	25,896	1,758	1,732	.06785	.06687	8.5	8.4
72 ...	24,156	24,164	1,754	1,754	.07261	.07260	8.0	7.9
73 ...	22,402	22,410	1,757	1,766	.07843	.07880	7.6	7.5
74 ...	20,645	20,644	1,768	1,765	.08562	.08550	7.2	7.1
75 ...	18,877	18,879	1,727	1,752	.09150	.09280	6.9	6.7
76 ...	17,150	17,127	1,730	1,723	.10086	.1006	6.5	6.4
77 ...	15,420	15,404	1,694	1,679	.10988	.1090	6.2	6.0
78 ...	13,726	13,725	1,612	1,618	.11742	.1179	5.9	5.7
79 ...	12,114	12,107	1,538	1,539	.12695	.1271	5.6	5.4
80 ...	10,576	10,568	1,431	1,443	.13530	.1365	5.3	5.1
81 ...	9,145	9,125	1,356	1,331	.14833	.1459	5.1	4.9
82 ...	7,789	7,794	1,212	1,209	.15560	.1551	4.9	4.6
83 ...	6,577	6,585	1,078	1,079	.16385	.1639	4.7	4.4
84 ...	5,499	5,506	952	948	.17307	.1722	4.5	4.1
85 ...	4,547	4,558	817	820	.17964	.1800	4.4	3.9
86 ...	3,730	3,738	701	727	.18804	.1945	4.2	3.6
87 ...	3,029	3,011	589	633	.19437	.2102	4.1	3.4
88 ...	2,440	2,378	498	540	.20416	.2272	4.0	3.2
89 ...	1,942	1,838	406	451	.20883	.2456	3.9	2.9
90 ...	1,536	1,387	326	368	.21235	.2654	3.8	2.7
91 ...	1,210	1,019	271	292	.22362	.2868	3.7	2.5
92 ...	939	727	223	225	.23742	.3100	3.6	2.3
93 ...	716	502	170	168	.23739	.3351	3.5	2.2
94 ...	546	334	142	121	.26038	.3621	3.5	2.0
95 ...	404	213	116	83	.28617	.3914	3.5	1.8
96 ...	288	130	74	55	.25811	.4230	3.7	1.7
97 ...	214	75	54	34	.25147	.4571	3.8	1.6
98 ...	160	41	39	20	.24490	.4941	4.0	1.4
99 ...	121	21	29	11	.23758	.5340	4.1	1.3
100 ...	92	10	18	6	.19205	.5771	4.2	1.2
101 ...	74	4	14	2	.19139	.6237	4.1	1.3
102 ...	60	2	15	1	.25000	.6741	4.0	1.0
103 ...	45	1	10	1	.21250	.7285	**4.1**	**0.5**
104 ...	35	..	2	..	.06977	.7873	4.2	..
105 ...	33	..	9	..	.28571	.8509	3.4	..
106 ...	24	..	5	..	.20000	.9196	3.5	..
107 ...	19	..	0	..	.00000	.9939	3.2	..
108 ...	19	..	0	..	.00000	1.0000	2.2	..
109 ...	19	..	5	..	.25000	....	1.2	..
110 ...	14	..	14	..	.....	....	0.5	..
111 ...	..	..	..	..	.....	....	..	..

MALE.

x	l'_x Not graduated	l_x Graduated	d'_x Not graduated	d_x Graduated	q'_x Not graduated	q_x Graduated	$\mathring{e}'_x$ Not graduated	$\mathring{e}_x$ Graduated
0	100,000	100,000	14,895	14,895	0.14895	0.14895	42.8	42.8
1	85,105	85,105	3,808	3,806	.04474	.04472	49.2	49.2
2	81,297	81,299	2,393	2,403	.02944	.02956	50.5	50.5
3	78,904	78,896	1,586	1,587	.02010	.02011	51.0	51.0
4	77,318	77,309	1,071	1,070	.01385	.01384	51.1	51.0
5	76,247	76,239	759	762	.00996	.00999	50.8	50.7
6	75,488	75,477	590	588	.00781	.00779	50.3	50.3
7	74,898	74,889	485	476	.00648	.00635	49.7	49.6
8	74,413	74,413	391	402	.00525	.00540	49.0	49.0
9	74,022	74,011	364	356	.00492	.00481	48.2	48.2
10	73,658	73,655	331	332	.00449	.00451	47.5	47.5
11	73,327	73,323	309	309	.00422	.00422	46.7	46.7
12	73,018	73,014	301	301	.00412	.00412	45.9	45.9
13	72,717	72,713	309	310	.00425	.00427	45.1	45.1
14	72,408	72,403	339	337	.00468	.00465	44.3	44.2
15	72,069	72,066	375	375	.00520	.00521	43.5	43.4
16	71,694	71,691	424	427	.00591	.00595	42.7	42.7
17	71,270	71,264	482	475	.00677	.00667	42.0	41.9
18	70,788	70,789	513	522	.00725	.00738	41.2	41.2
19	70,275	70,267	561	551	.00799	.00784	40.5	40.5
20	69,714	69,716	565	572	.00811	.00821	39.9	39.8
21	69,149	69,144	584	584	.00845	.00844	39.2	39.1
22	68,565	68,560	592	594	.00864	.00866	38.5	38.5
23	67,973	67,966	586	596	.00862	.00877	37.8	37.8
24	67,387	67,370	615	594	.00912	.00881	37.2	37.1
25	66,772	66,776	576	588	.00863	.00880	36.5	36.5
26	66,196	66,188	579	580	.00874	.00876	35.8	35.8
27	65,617	65,608	567	571	.00864	.00871	35.1	35.1
28	65,050	65,037	552	564	.00848	.00867	34.4	34.4
29	64,498	64,473	582	556	.00902	.00863	33.7	33.7
30	63,916	63,917	545	552	.00852	.00863	33.0	33.0
31	63,371	63,365	543	549	.00857	.00866	32.3	32.3
32	62,828	62,816	542	548	.00863	.00873	31.6	31.5
33	62,286	62,268	544	552	.00874	.00886	30.8	30.8
34	61,742	61,716	572	557	.00926	.00903	30.1	30.1
35	61,170	61,159	559	567	.00914	.00927	29.4	29.4
36	60,611	60,592	584	579	.00964	.00955	28.7	28.6
37	60,027	60,013	592	594	.00986	.00990	27.9	27.9
38	59,435	59,419	593	611	.00997	.01029	27.2	27.2
39	58,842	58,808	650	630	.01104	.01072	26.5	26.5
40	58,192	58,178	645	651	.01108	.01119	25.8	25.7
41	57,547	57,527	692	672	.01202	.01168	25.0	25.0
42	56,855	56,855	689	694	.01212	.01221	24.3	24.3
43	56,166	56,161	703	717	.01251	.01277	23.6	23.6
44	55,463	55,444	762	742	.01374	.01338	22.9	22.9
45	54,701	54,702	766	769	.01400	.01406	22.2	22.2
46	53,935	53,933	786	799	.01457	.01481	21.5	21.5
47	53,149	53,134	820	831	.01542	.01564	20.9	20.8
48	52,329	52,303	861	866	.01645	.01656	20.2	20.2
49	51,468	51,437	943	903	.01833	.01756	19.5	19.5
50	50,525	50,534	928	942	.01837	.01864	18.9	18.8
51	49,597	49,592	978	981	.01972	.01979	18.2	18.2
52	48,619	48,611	1,024	1,023	.02107	.02104	17.6	17.5
53	47,595	47,588	1,065	1,066	.02237	.02241	16.9	16.9
54	46,530	46,522	1,121	1,112	.02409	.02390	16.3	16.3
55	45,409	45,410	1,151	1,161	.02535	.02556	15.7	15.7
56	44,258	44,249	1,204	1,212	.02721	.02740	15.1	15.1
57	43,054	43,037	1,260	1,267	.02926	.02943	14.5	14.5
58	41,794	41,770	1,294	1,322	.03097	.03164	13.9	13.9
59	40,500	40,448	1,430	1,375	.03531	.03399	13.3	13.3
60	39,070	39,073	1,425	1,426	.03647	.03649	12.8	12.8
61	37,645	37,647	1,484	1,472	.03943	.03909	12.3	12.2
62	36,161	36,175	1,508	1,514	.04170	.04185	11.8	11.7

MALE.—Continued.

x	l'_x Not graduated	l_x Graduated	d'_x Not graduated	d_x Graduated	q'_x Not graduated	q_x Graduated	$\mathring{e}'_x$ Not graduated	$\mathring{e}_x$ Graduated
63 ...	34,653	34,661	1,546	1,552	0.04460	0.04478	11.3	11.2
64 ...	33,107	33,109	1,589	1,588	.04801	.04796	10.8	10.7
65 ...	31,518	31,521	1,608	1,620	.05102	.05141	10.3	10.2
66 ...	29,910	29,901	1,647	1,652	.05506	.05525	9.8	9.7
67 ...	28,263	28,249	1,682	1,680	.05952	.05946	9.4	9.3
68 ...	26,581	26,569	1,679	1,702	.06317	.06406	8.9	8.8
69 ...	24,902	24,867	1,761	1,718	.07072	.06907	8.5	8.4
70 ...	23,141	23,149	1,707	1,723	.07376	.07445	8.1	8.0
71 ...	21,434	21,426	1,729	1,719	.08066	.08022	7.7	7.6
72 ...	19,705	19,707	1,705	1,702	.08655	.08638	7.3	7.2
73 ...	18,000	18,005	1,660	1,673	.09224	.09294	7.0	6.9
74 ...	16,340	16,332	1,642	1,632	.10050	.09992	6.6	6.5
75 ...	14,698	14,700	1,570	1.579	.10684	.1074	6.3	6.2
76 ...	13,128	13,121	1,513	1,514	.11523	.1154	6.0	5.9
77 ...	11,615	11,607	1,450	1,438	.12484	.1239	5.7	5.6
78 ...	10,165	10,169	1,330	1,350	.13082	.1328	5.4	5.3
79 ...	8,835	8,819	1,263	1,254	.14292	.1422	5.2	5.0
80 ...	7,572	7,565	1,143	1,149	.15097	.1519	5.0	4.8
81 ...	6,429	6,416	1,050	1,036	.16326	.1615	4.8	4.5
82 ...	5,379	5,380	913	920	.16978	.1710	4.6	4.3
83 ...	4,466	4,460	810	803	.18132	.1801	4.4	4.1
84 ...	3,656	3,657	689	689	.18841	.1884	4.3	3.9
85 ...	2,967	2,968	586	581	.19747	.1957	4.2	3.7
86 ...	2,381	2,387	480	501	.20153	.2100	4.1	3.4
87 ...	1,901	1,886	395	425	.20784	.2253	4.0	3.2
88 ...	1,506	1,461	324	353	.21531	.2417	3.9	3.0
89 ...	1,182	1,108	257	287	.21765	.2593	3.9	2.8
90 ...	925	821	197	228	.21342	.2780	3.8	2.6
91 ...	728	593	163	177	.22398	.2985	3.7	2.4
92 ...	565	416	127	133	.22489	.3203	3.7	2.3
93 ...	438	283	102	97	.23325	.3436	3.6	2.1
94 ...	336	186	79	69	.23452	.3687	3.5	2.0
95 ...	257	117	71	46	.27435	.3956	3.5	1.8
96 ...	186	71	49	30	.26579	.4244	3.6	1.7
97 ...	137	41	34	19	.25108	.4554	3.7	1.5
98 ...	103	22	24	11	.23345	.4886	3.7	1.4
99 ...	79	11	17	6	.22013	.5218	3.7	1.2
100 ...	62	5	17	3	.27184	.5624	3.6	1.1
101 ...	45	2	9	1	.20635	.6034	3.8	1.0
102 ...	36	1	4	1	.11429	.6474	3.6	0.5
103 ...	32	..	6	..	.20000	.6946	3.0	..
104 ...	26	..	7	..	.00000	.7452	2.6	..
105 ...	19	..	7	..	.27273	.7996	2.3	..
106 ...	12	..	2	..	.45455	.8578	2.4	..
107 ...	10	..	2	..	.16667	.9204	1.8	..
108 ...	8	..	3	..	.25000	.9875	1.1	..
109 ...	5	..	5	..	.33333	1.0000	0.5	..
110 ...	..	..	..	..	.....	.....	..	..

RÉSUMÉ.

SUR LA MORTALITÉ DES JAPONAIS.

Par T. Yano.

La table de mortalité est établie d'après les matériaux contenus dans les statistiques de la population au Japon. On réfère au nombre collectif des survivants dans chaque année d'âge et à celui des décès durant huit années (1891–1898).

Prenant Λx comme représentant la somme du nombre des vivants à chaque âge, à la fin de l'année, durant les huit années (1891–1898), et Δx comme repré-

sentant la somme du nombre des décès à chaque âge à l'époque du décès, durant les mêmes années, on pourra calculer $q'x$ d'après l'équation suivante :

$$q'x \frac{\Delta_x}{\frac{\Lambda_x + \Lambda_x + 1}{2} + \Delta_x}$$

Ceci posé, aux âges de 21 à 85, $q'x$ est calculé par la « Nouvelle Méthode Mécanique de Graduation » de Mr. J. Karup, présentée au Second Congrès International des Actuaires; aux âges de 20 et moins, on se réfère à la « Théorie de Graduation par Minimum » de Mr. Landré. Enfin aux âges de 86 et plus, on applique la formule bcx.

KURZE NOTIZ.

ÜBER DIE STERBLICHKEIT DER JAPANESEN.

Von T. Yano.

Das aus den Statistiken der Bevölkerung von Japan gezogene Material dient zur Zusammenstellung der Sterblichkeits-Tabelle. Es wird auf die vereinigte Zahl von Ueberlebenden in jedem Alter und die Zahl der Todesfälle während der Dauer von acht Jahren (1891–1898) Bezug genommen.

Wenn Λx die Summe der Zahl der Lebenden jeden Alters am Ende eines jeden Jahres während der Dauer von acht Jahren (1891–1898) angiebt, und $\triangle x$ die Summe der Zahl der Todesfälle jeden Alters zur Zeit des Todes während derselben Jahre repräsentiert, so ist $q'x$ durch folgende Gleichung zu erhalten:

$$q'x = \frac{\Delta_x}{\frac{\Lambda_x + \Lambda_x + 1}{2} + \Delta_x}$$

Das $q'x$ der Alter von 21 bis 85 wurde durch Mr. J. Karup's „New Mechanical Method of Graduation" — vorgetragen im Zweiten Internationalen Statistischen Congress — ausgerechnet; hinsichtlich des Alters bis 20 inclusive ist auf Mr. Landré's „Graduation by Minimum Theory" Bezug genommen. Für das Alter von 86 aufwärts jedoch ist die Formel bcx angewandt.

MORTALITY AMONG NON-CAUCASIAN RACES.

BY

ARTHUR HUNTER, F.I.A., A.I.A.,

Actuary of the New York Life Insurance Co.

In determining what races should be included among the Non-Caucasian, I was largely influenced by the practical view—What races are likely to be of especial interest to insurance men as a field for the exercise of their business? There is, of course, the additional factor that only those races can be investigated which offer sufficient and clearly defined materials for our study. Taking up the subject from these standpoints, there were four classes which it appeared desirable to investigate, namely, British East Indians, Japanese, Chinese and Negroes. While it may be argued that certain of the peoples in India are of Caucasian origin, it seemed advisable to take all the natives of India, irrespective of their origin. We accordingly grouped together Parsees, Mohammedans, Hindoos and native Christians.

While statistics on insured lives resident in Europe, Canada, Australia and the United States of America show that the data which were used twenty-five years ago may still be employed, as the mortality among such lives has not shown any very marked improvement during the last twenty five years, the same condition may not hold good among insured lives in tropical countries. Certainly population statistics show a decided improvement within recent years in certain tropical countries where modern sanitation has been put into effect. It is, of course, a matter of common knowledge that the general improvement traceable in population statistics is due in large measure to the greater care of infants, but such improvement also extends beyond infant ages. In order to determine whether there has been any improvement among *insured* lives in tropical countries within the last few years, we have given separately the experience of the last five calendar years, and of the earlier years whenever it was possible to do so.

In measuring the expected deaths two standards have been employed —(a) the American Table, and (b) the Select Table adopted by the Actuarial Society of America. In case these tables may not be familiar to some actuaries, it may be well to state that the American Table of Mortality is the standard adopted by both the Insurance Companies and the State Insurance Departments for calculating net premiums and reserves on the basis of 3% and 3½% interest. It was compiled by Mr. Sheppard Homans from the Mutual Life Experience. Care should be taken not to confuse it with the Thirty American Offices' Experience (Meech), which has never come into use in the United States as a standard either for computing premiums or for calculating reserves. The mortality by the American Table is about 90% of the H^M and about 80% of the English Life Table No. 1. This statement is necessary because we have been compelled to make exhibits on each of these three tables in making extracts from other contributions on the mortality among people of Non-Caucasian origin.

The Actuarial Society Table is as follows for the 6th and following insurance years:

TABLE I.

RATE OF MORTALITY ACCORDING TO FARR'S HEALTHY ENGLISH MALE LIFE TABLE.

(Amended at ages 10 to 21 and 52 to 61 inclusive.)

Age.	qx.	Age.	qx.	Age.	qx.
15	.00692	45	.01076	75	.08400
16	.00696	46	.01111	76	.09107
17	.00702	47	.01153	77	.09862
18	.00706	48	.01200	78	.10689
19	.00711	49	.01248	79	.11552
20	.00717	50	.01301	80	.12493
21	.00725	51	.01364	81	.13470
22	.00732	52	.01443	82	.14523
23	.00748	53	.01533	83	.15643
24	.00762	54	.01630	84	.16794
25	.00775	55	.01736	85	.18018
26	.00784	56	.01852	86	.19338
27	.00793	57	.01979	87	.20655
28	.00802	58	.02118	88	.22080
29	.00812	59	.02268	89	.23565
30	.00821	60	.02434	90	.25073
31	.00828	61	.02615	91	.26562
32	.00835	62	.02850	92	.28191
33	.00845	63	.03108	93	.30124
34	.00852	64	.03388	94	.31449
35	.00865	65	.03680	95	.33505
36	.00876	66	.03999	96	.34884
37	.00889	67	.04343	97	.36905
38	.00903	68	.04719	98	.39623
39	.00918	69	.05124	99	.40625
40	.00938	70	.05564	.....	.....
41	.00960	71	.06040	.....	.....
42	.00985	72	.06567	.....	.....
43	.01010	73	.07127	.....	.....
44	.01039	74	.07742	.....	.....

In order to represent the effect of selection during the first five insurance years, the Council of the Actuarial Society employed the following percentages of the ultimate rate given in the foregoing table:

TABLE II.

Age Group.	Insurance Year.				
	1	2	3	4	5
15–28	45%	64%	79%	90%	97%
29–42	50	68	82	92	98
43–56	55	72	85	94	99
57–70	60	76	88	96	100

Having given a brief explanation of the tables which have been used in measuring our data, we shall now take up the study of the mortality among the various classes. We shall first deal with the case of the Negro.

Negroes.

There has been a large mass of statistics published in the United States regarding the mortality among the Negro population, but in the majority of cases the figures are valueless for the purpose of this paper, because the ages of the inhabitants were not usually taken into account, and comparisons are accordingly instituted between the white and negro population in communities where the average age differs very widely between the two races. Fortunately we have been able to obtain some statistics on insured lives which are thoroughly reliable.

The Actuarial Society of America in its investigations into the mortality among insured lives upon which an extra mortality was expected, included Negroes resident in the United States and Canada. Measured by the Actuarial Society Table, the following are the expected and actual deaths for various age groups for the policy years from 1 to 30 inclusive:

TABLE III.

NEGROES IN UNITED STATES & CANADA. ACTUARIAL SOCIETY'S EXPERIENCE.

Insurance Years 1 to 30 Inclusive.

Age at Entry.	Actual Deaths.	Expected Deaths	Ratio of Actual to Expected Deaths.
15–28	29	29.2	99%
29–42	137	120.8	113
43–56	70	63.9	110
57–70	6	9.8	61
15–70	242	223.7	108

The actual mortality of the aggregate experience is 108% of the Expected Mortality by the Society Table, but if we exclude the first five years, the actual deaths are found to be 92% of the expected—those of the first five years being 122%.

TABLE IV.

NEGROES IN UNITED STATES & CANADA.

Actuarial Society's Experience.

Ages at Entry.	Insurance Years 1–5.			Insurance Years 6–30.		
	Actual Deaths.	Expected Deaths by Act. Soc. Table.	Ratio of Actual to Expected Deaths.	Actual Deaths.	Expected Deaths by Act. Soc. Table.	Ratio of Actual to Expected Deaths.
15–28	21	16.5	127%	8	12.7	63%
29–42	84	66.2	127	53	54.6	97
43–56	40	32.7	122	30	31.2	96
57–70	2	5.1	39	4	4.7	85
15–70	147	120.5	122	95	103.2	92

The ratio of the actual to the expected deaths, according to the American q_x is 85% for the whole experience.

The mortality on Negroes as exhibited by the Society investigation is more favorable than the authorities in this country had expected. The Council of the Actuarial Society commented on this point as follows: "It must be recollected that great care has been taken in the selection of this class of risks." There is really a three-fold selection. First, the care exercised by the Medical Boards; Second, the selection which is the outcome of the fact that only the best of the Negroes have sufficient money and intelligence to apply for life insurance in "Ordinary" companies, and, Third, the selection which results from the fact that the business came without being sought. We cannot, therefore, draw the conclusion from the above experience that the mortality among Negroes is practically the same as among Whites, although it *does* represent the mortality among insured Negro lives under existing conditions.

In the following table we have been able, through the courtesy of Mr. John K. Gore, Actuary of the Prudential Insurance Company of America, to present figures which more nearly represent the relationship between the two races. It exhibits the number of deaths among Negroes to each 100 deaths among Whites, on the basis of equal numbers exposed to risk. It is taken from the "Industrial" experience, and not from the "Ordinary," as was the case in Tables III and IV.

TABLE V.

"INDUSTRIAL" MORTALITY AMONG NEGROES.

NUMBER OF DEATHS AMONG NEGROES TO EACH 100 DEATHS AMONG WHITES.

Attained Ages.	White.	Negroes.
3– 4	100	146
5– 9	100	148
10–14	100	239
15–19	100	255
20–24	100	155
25–29	100	120
30–34	100	129
35–39	100	127
40–44	100	140
45–49	100	123
50–54	100	140
55–59	100	127
60–64	100	122
65–69	100	107
70–74	100	112
75–79	100	96
80 and up	100	159

From the beginning to the end of the above table the number of deaths among the Negroes is about 144 to 100 among the Whites, but from ages 10 to 19, inclusive, there is a very high ratio, namely, 247 Negroes to every 100 Whites. This was so unexpected that Mr. Gore verified his work. The condition is due to either or both of the two things—(a) the Negro Industrial Mortality is in itself very high between these ages; or, (b) the White Industrial Mortality is unusually low between ages 10 and 20.

In order to avoid any chance of the foregoing being a condition peculiar to the "Prudential," we invited Mr. J. M. Craig, the Actuary

of the Metropolitan Life Insurance Company, to present his views on the subject. He stated that his investigations into the mortality among Negroes insured upon their "Industrial" plan were not yet completed, but, so far as he had gone, conditions similar to the above held good in the case of his Company.

So far, the statistics have dealt only with the Negro in the United States and Canada. Mr. Spencer C. Thomson, Manager of the Standard Life Assurance Company of Scotland, has recently delivered a lecture before the Faculty of Actuaries in Scotland, from which the mortality experience among insured colored persons in the West Indies, on the "Ordinary" plan has been extracted. While the colored persons are not purely Negro in origin, they are very largely so. The table is as follows:

TABLE VI.

WEST INDIES.

MORTALITY EXPERIENCE AMONG COLORED PERSONS, 1846 TO 1885.

Age.	Exposed to Risk.	Actual Deaths.	Expected Deaths by English Life Table No. 1 (Males).	Ratio of Actual to Expected Deaths.
14–19	8.9	.....	.07	.....
20–29	679.5	4	6.40	63%
30–39	1952.5	34	22.57	151
40–49	2052.2	47	30.13	156
50–59	1014.3	49	20.51	239
60–69	219.9	16	8.81	182
70–84	36.1	5	3.49	143
	5963.4	155	91.98	169

The ratio of the actual to expected deaths by the English Table, No. 1, was thus 169%, or about 200% of the American Experience, and probably 230% of the Actuarial Society Table. The differences between the experience of the American Companies compiled by the Actuarial Society, and that of the Standard Assurance Company just exhibited, is largely due to the difference in climatic conditions and the standard of living between the United States and Canada on the one hand and the West Indies on the other.

We had hoped to supplement our statistics on the Negro race by furnishing some data on the Mulatto in the United States and Canada. Unfortunately, however, the materials at our disposal are so scant that no satisfactory conclusions can be drawn. The total expected deaths by the Actuarial Society Table were 8, while the actual deaths were 12—a ratio of 150%. All the risks were insured under the "ordinary" plan. The foregoing may be an indication that the popular opinion regarding the heavy mortality among Mulattoes is correct. In some circles it is an article of faith that the Mulatto in the United States is a much poorer risk, both morally and physically, than either the Negro or the White.

JAPANESE.

We have obtained a considerable body of statistics from the experience of the Japanese native companies. As we are principally interested in aggregate figures, we have omitted the details by ages, because they would make the paper much too bulky. There are three experi-

ences which we have measured by the American Table: 1st, The Nippon Life Insurance Company for the calendar years 1899, 1900 and 1901; 2nd, 25 Japanese Companies for the calendar year 1899; and 3rd, One of the largest Japanese Companies for the year 1900, whose name is withheld by request.

TABLE VII.

JAPANESE LIVES INSURED IN JAPANESE COMPANIES.

Source.	Actual Deaths.	Expected Deaths by American Mortality Table.	Ratio of Actual to Expected Deaths.
Nippon 1899–01	2763	2813	98%
25 Japanese Companies 1899	6872	7334	94%
Large Japanese Company	502	482	104%

As the Nippon was ten years old in 1899, its experience should not have exceeded 85% of the American tabular mortality had it been an American Company of the same age conducting business on the lives of citizens of the United States. The average age of the 25 Japanese Companies was less than that of the Nippon, while the large Company to which we referred was older than the Nippon. From all of this we come to the conclusion that the mortality on Japanese in native companies is fully 20% greater than among companies conducting business on Caucasian lives in temperate zones.

Those who have read the reports of Japanese companies are apt to jump to the conclusion that the business is "Industrial" in its character, because the average amount of the policies is only about $100. Further investigation develops the fact, however, that such is not the case, as the business and professional men largely outnumber those of the artisan classes among the insured. The small average amount of the policies is due to economic conditions in Japan.

Through the kindness of Mr. R. G. Hann, Assistant Actuary of the Equitable, and Mr. T. B. Macaulay, Actuary of the Sun Life Assurance Company of Canada, we present the combined statistics of these two companies, together with the data of the New York Life on Japanese, Chinese, British East Indians and Eurasians. Unfortunately, the Japanese business of these three companies is mainly of recent origin—only eight months having occurred and no solid conclusions can be built upon so limited an experience.

India.

The Indians to whom we shall refer are the natives of British East India, including Ceylon.

There have been published several experiences on the mortality among foreigners living in India, but the statistics on Natives and Eurasians are not extensive. The first experience to which your attention is drawn is that of the Oriental Government Security Life Assurance Company, which was founded in 1874. The following is a synopsis of the results of their experience from 1874 to the end of 1891:

TABLE VIII.

MORTALITY IN INDIA.

ORIENTAL GOVERNMENT SECURITY LIFE ASSURANCE COMPANY.

1874–1891.

Class.	Actual Deaths.	Expected Deaths by H^m Table.	Ratio of Actual to Expected Deaths.
Natives	566	469	121%
Eurasians	66	76	86%

Unfortunately we could not measure the above experience by the American Mortality Table, but estimate that the ratio of actual to expected deaths by that table would be 135% for Natives and 95% for Eurasians.

The excellent mortality among Eurasians is rather astonishing, as it is usually held that half-breeds have not the stamina of either of the parent stocks, but in the above instance it seems that the Eurasians were better fitted to stand the climate and the conditions of life in India than either of the parent stocks—the mortality among foreigners (Whites) being 152% of the H^M. The experience of the Oriental has been confirmed by the experience of the Standard Life Assurance Company of Scotland. The following is compiled from the report of Mr. Spencer C. Thomson, the Manager of the latter Company:

TABLE IX.

MORTALITY IN INDIA—1895–1900

STANDARD LIFE ASSURANCE COMPANY.

Class.	Actual Deaths.	Expected Deaths by English Life Table No. 1 (Males).	Ratio of Actual to Expected Deaths.
Natives	46	44.2	104%
Eurasians	13	14.8	88%

It should be borne in mind that the foregoing were all recently selected risks and that the Company's normal experience on British lives in Britain would not be more than 80% of the expected deaths by the English Life Table No. 1 (Males), and probably much smaller than that percentage.

Coming now to the Indian experience of the two American and one Canadian Company, we desire to submit the following statistics. They comprise the combined experience of the three companies on natives of British East India and Ceylon, and an endeavor has been made to eliminate the Eurasians from the Natives, giving these separately, although in a few cases it has been found very difficult to do so. The experience is divided into two sections:

(a) The first five years of exposure,

(b) The exposures from the 6th policy year to the end of the experience.

These have been subdivided into the issues of 1897 and subsequent years and of years prior to 1897, in order to determine whether or not there has been any improvement in the mortality in recent years.

NATIVES OF BRITISH EAST INDIA AND CEYLON.

STATISTICS OF TWO AMERICAN AND ONE CANADIAN COMPANY.

Insurance Yrs.	Actual Deaths.	Expected Deaths by Act. Society Table.	Ratio of Actual to Expected Deaths.
1st to 5th Yr	407	168.7	241%
6th Yr. to end	71	37.3	190
Total	478	206.0	232%

BY YEARS OF ISSUE.

Issued before 1897	208	95.5	218%
Issued 1897–1901	270	110.5	244
Total	478	206.0	232%

BY CALENDAR YEARS OF EXPOSURE.

From issue to 1897	83	34.4	241%
1897–1902	395	171.6	230
Total	478	206.0	232%

On casually glancing at the second portion of the above table one would be apt to decide that there was a distinct deterioration in the mortality during the last five years of issue, but on examining the first part of the table it will be seen that this is not the case, as the mortality for the first five insurance years is 241%, and thereafter 190%. It should be borne in mind that those policies issued from 1897 to 1901 were all in their first 5-Year Periods, whereas those issued prior to 1897 had been more than five years in force. Two reasons may be given why we should not look for an improvement in the mortality in India within the last five years:

1. The improvement in sanitation is very slow, so that its effect could only be seen by a study extending over 25 or 30 years.

2. The plague and cholera have been very prevalent in the last five years.

With regard to "1"—the improvements in sanitary conditions in tropical countries have been carried out at varying rates of speed and with varying results on the mortality rate. We should not expect, therefore, to see a decided improvement in the mortality in India due to the advancement of sanitary ideas because of the inertia of the population and their poverty. On the other hand, in countries like Cuba, there

has been a wonderful change in the sanitary conditions owing to the vigorous measures of the American authorities and to the large amount of money at their disposal. As a proof of the advancement of the City of Havana, it may be mentioned that the death-rate for the years 1890 to 1895 was 33 per thousand, and for the years 1901 and 1902 it was 21 per thousand. This remarkable decrease is largely due to the strenuous sanitary measures adopted by the American authorities, and partly due to the fact that the old, weak and sickly died during the period of the Cuban War of Independence, during which the mortality in Havana was 74 per thousand. That the sanitary measures have a great deal to do with the improvement may be judged from the fact that the plague of yellow fever has been entirely driven out of Cuba, so that no cases of that disease have arisen in the Island during the last two years.

With regard to "2"—we find that the total number of deaths in the experience of the Three Companies among the issues of 1897 to 1901 inclusive were 270, of which 70 were from plague and cholera (26%); while the total deaths among the issues prior to 1897 were 208, of which 28 were from plague and cholera (13%). Looking at the data from another standpoint, the total number of deaths during the calendar years 1897 to 1901 were 395, out of which there were 87 deaths from plague and cholera, a ratio of 22%; whereas in the calendar years prior to 1897 the total deaths were 83, among which the deaths from plague and cholera numbered 13—a ratio of 16%.

As a matter of interest we may mention that the expected deaths for the natives, by the American Table of Mortality, were 293, while the actual were 478—a ratio of actual to expected of 163%.

The experience of the three companies among Eurasians was small, so that a subdivision of the data such as is given for natives would not be conclusive. We accordingly give a synopsis of the total experience only:

TABLE XI.

EURASIANS.

STATISTICS OF TWO AMERICAN AND ONE CANADIAN COMPANY.

Table of Mortality.	Actual Deaths.	Expected Deaths.	Ratio of Actual to Expected Deaths.
Actuarial Society	16	10.0	160%
American.....	16	13.4	119

While the experience on insured Eurasians is small, there is confirmation of the experiences of the Oriental Life Insurance Company and the Standard that the Eurasian insured lives are better than the native insured lives.

CHINESE.

In analysing the experience of the three companies on insured Chinese resident in China, we divided it into policies issued from 1897 to 1901, and those issued prior to 1897, but the figures were so small that only the aggregate experience is given. In addition to the insured Chinese resident in China, we present the aggregate experience of those resident in Eastern Ports, and also those resident in the United States and Canada:

TABLE XII.

CHINESE NATIVES.

STATISTICS OF TWO AMERICAN AND ONE CANADIAN COMPANY.

Residence.	Actual Deaths.	Expected Deaths Act. Soc. Table.	Ratio.	Expected Deaths American Table.	Ratio.
China.....	90	40.2	224%	50.5	178%
Eastern Ports.....	37	15.3	242	20.3	182
U. S. & Canada	5	8.3	60	11.5	43
Total.....	132	63.8	207	82.3	160

There is hardly any sanitation in China, nor is there any knowledge of medicine, and accordingly a high mortality was expected. The general opinion of European and American physicians who have lived in China is that the Chinese are a hardy race, but that the conditions of life are such that even a higher mortality than the foregoing may be expected among the population at large.

It would not be advisable to draw the conclusion from the above table that Chinese in the United States and Canada are abnormally good lives; there is every reason to believe that they are very much better lives in the United States, Canada and Australia than in their native country, but whether or not they are equal in longevity to Americans, Canadians or Europeans is a matter which must be left for time to determine.

NATIVES OF JAVA, SUMATRA AND STRAITS SETTLEMENTS.

In the combined experience of the Three Companies appear a few cases of insured lives among natives of Java, Sumatra and the Straits Settlements. The expected deaths by the Actuarial Society Table were 5.8, and the actual deaths, 12—a ratio of actual to expected of 207%, against 162% by the American Table. These are simply given as a matter of interest, and not with the expectation that any conclusions will be drawn therefrom.

CONCLUSIONS.

The following conclusions in my judgment may be drawn from the foregoing tables:

1. That Negro insured lives in "Ordinary" companies have a slightly higher mortality than White lives insured in the same companies, and that in "Industrial" companies the excess of the former over the latter is at least 40%.

2. That the mortality among Chinese in China and in Eastern Ports is fully two times as large as insured lives of Americans in the United States, or Englishmen in Britain, and is practically the same as among natives of India in India, even though the insurance companies have generally drawn their business from a higher social plane in China than in India.

3. That the mortality among Japanese in Japan is about 20% in excess of the mortality among Americans in the United States or Englishmen in Britain, and is very much better than among either natives of India or Chinese. If the conditions of life improve in Japan, the mortality may approximate in the future to that of the United States of America or Britain.

4. That the mortality rate among natives of India is probably double that of Englishmen resident in Britain, or Americans in the United States of America, but that the measure of the excess mortality will partly depend on the conditions under which the business is obtained, and the comparative prevalence of plague and cholera.

In closing this paper I should like to point out that the climate, the hygienic condition of the community, the method of living, and the stamina of the natives are all factors in determining the relative mortality, but that the method of conducting business is of equal, if not greater, importance than any one of the foregoing. If the Agency Manager is careless, an abnormal percentage of agents are dishonest, and some of the medical examiners either incapable or dishonest, there will surely be a very high mortality resulting from these causes. It can readily be seen, therefore, that two companies conducting business in the same community may have a very different mortality, due to the difference in their business organizations. As so much depends upon the class from which the business is drawn and the conditions of the business organization, I have not made any attempt to follow the usual lines of preparing a set of premiums based upon actual experience, with a view to comparing such premiums with those charged to the natives, and thereby determining whether or not the premiums charged are adequate. I have merely endeavored to lay down the lines upon which business can be *safely* done. It should be remembered that the data are not sufficient to give us a proper comparison of the mortality according to age, and that any premiums based upon an average percentage of a standard mortality table *at all ages* would be merely an approximation. In my judgment, the best an actuary can do is to prepare a scale of premiums which he is sure is sufficiently high at all ages, and then take every care to see that the surplus distributed is in accordance with the actual mortality experience by ages, so that where the premium has been too high the dividends will offset the excess, and *vice versa*.

RÉSUMÉ.

LA MORTALITÉ DES RACES NON-CAUCASIENNES.

Par Arthur Hunter.

Ce travail traite de la mortalité observée parmi les Chinois, les Japonais, les Indous et les Nègres. En prenant pour base la mortalité des assurés Americains résidant aux Etats-Unis, ou des assurés Anglais demeurant en Grande-Bretagne, on obtient les résultats suivants:

1. La mortalité des Nègres aux Etats-Unis depasse d'environ 40% la base adoptée.

2. La mortalité des Indous est probablement le double de la base adoptée. La longévité des Européens résidant en Asie est plus grande que celle des Indigénes.

3. La mortalité des Chinois résidant en Chine et dans les ports de l'Est est sensiblement la même que celle des Indous, c'est-à-dire deux fois la base.

4. La mortalité des Japonais, assurés par les compagnies Japonaises dépasse d'environ 20% la base adoptée.

KURZE NOTIZ.

DIE STERBLICHKEIT DER NICHT-KAUKASISCHEN RASSEN.

Von Arthur Hunter.

Diese Abhandlung behandelt die Sterblichkeit unter Chinesen, Japanesen, Indern und Negern. Unter Annahme der in den Vereinigten Staaten von Amerika lebenden versicherten Amerikaner oder der in Grossbritannien lebenden versicherten Engländer, als Vergleichsbasis, werden die folgenden Schlussfolgerungen gezogen:

1. Dass die Sterblichkeit unter den Negern der Vereinigten Staaten die Basis um etwa 40% übersteigt.

2. Dass die Sterblichkeit unter den Eingeborenen von British Ostindien wahrscheinlich noch einmal grösser als die Basis ist; und dass in Asien lebende Europäer eine längere Lebensdauer besitzen als die Eingeborenen.

3. Dass die Sterblichkeit der Chinesen in China und den ost-asiatischen Hafenplätzen faktisch derjenigen der Eingeborenen in Indien gleichkommt, folglich doppelt so gross ist wie die Basis.

4. Dass unter den bei einheimischen Anstalten versicherten Japanesen die Sterblichkeit die Basis um ungefähr 20% übersteigt.

INVALIDITÄT UND MORTALITÄT BEI DEN BAYERISCHEN KNAPPSCHAFTSKASSEN.

Von Dr. J. Eggenberger (München).

Zum Zwecke der Gewinnung von versicherungstechnischen Grundlagen hat die königl. bayerische Regierung im Jahre 1902 eine umfangreiche statistische Erhebung über die Sterblichkeits- und Dienstunfähigkeitsverhältnisse bei den den Knappschaftsvereinen angehörenden und in den staatlichen Betrieben beschäftigten Arbeitern veranstaltet.

Es kamen dabei folgende Betriebe und Betriebsgruppen in Betracht:

1. *3 Kohlenbergwerke;*
2. *6 Hüttenwerke* (wovon 2 mit Bergbau auf Eisenstein);
3. *4 Salinenbetriebe* (wovon 1 mit Bergbau auf Salz).

Weil aber die Zahl der in diesen Betrieben beschäftigten ständigen Arbeiter eine beschränkte ist — Ende 1901 betrug dieselbe 2509 — musste die statistische Untersuchung auf 30 Jahre, nämlich auf die Periode 1870-1900 ausgedehnt werden.

Wir geben die Hauptergebnisse der Statistik in den nachfolgenden 2 Tabellen. In der ersten derselben sind die *durchschnittlichen* — ohne Rücksicht auf das Alter — Sterbens- und Invaliditätswahrscheinlichkeiten für die einzelnen Betriebsgruppen aufgeführt. Es ergiebt sich daraus, dass die Abweichung der durchschnittlichen Wahrscheinlichkeiten bei der Invalidität grösser ist als bei der Sterblichkeit. Grosse Unterschiede ergaben sich teilweise auch für Betriebe in der nämlichen Betriebsgruppe. Wenn diese Thatsache nun auch einerseits auf die zweifellos bestehende Unsicherheit des Invaliditätsbegriffs zurückzuführen ist, so ist andererseits zu konstatieren, dass dabei auch die Verschiedenheit der Höhe der bei den einzelnen Betrieben gewährten Invalidenrenten einen erheblichen Einfluss ausübt. Es ist daher der Schluss zulässig, dass bei Vereinheitlichung der Rentenbezüge und der Kassenverwaltung die Unterschiede in der Invalidisierung sich innerhalb der nämlichen Betriebsgruppe mehr und mehr ausgleichen und einer gewissen Gleichförmigkeit Platz machen werden.

In Tabelle II werden die für den gesamten Betrieb zu versicherungstechnischen Zwecken bearbeiteten und nach einem vereinfachten Woolhouse'schen Verfahren ausgeglichenen Wahrscheinlichkeitswerte gegeben. Dabei bezeichnen:

q_x die Sterbenswahrscheinlichkeit für die Gesamtheit der Männer (Aktive und Invalide);
q_x^a die Wahrscheinlichkeit als Aktiver zu sterben;
q_x^i die Sterbenswahrscheinlichkeit der Invaliden;
w_x^i die Invaliditätswahrscheinlichkeit, stets für das Alter x.

TABELLE I.

Beobachtungsperiode 1870-1900		Gesamter Bergbau	Gesamter Hüttenbetrieb	Gesamter Salinenbetrieb	Gesamter Betrieb
Sterblichkeit der Männer insgesamt	Unter einjähriger Beobachtung gestandene Personen	32,884.5	25,764.5	17,580.0	76,229.0
	Im Laufe des Jahres gestorben	731	695	571	1997
	Durchschnittliche Sterbenswahrscheinlichkeiten	0.02223	0.02698	0.03246	0.02619
Sterblichkeit der Aktiven	Unter einjähriger Beobachtung gestandene Personen	27,025.5	22,587.0	14,930.5	64,543.0
	Im Laufe des Jahres gestorben	211	319	271	801
	Durchschnittliche Sterbenswahrscheinlichkeiten	0.00781	0.01412	0.01814	0.01241
Sterblichkeit der Invaliden	Unter einjähriger Beobachtung gestandene Personen	5,859.0	3,177.5	2,649.5	11,686.0
	Im Laufe des Jahres gestorben	520	376	300	1,196
	Durchschnittliche Sterbenswahrscheinlichkeiten	0.08875	0.11833	0.11323	0.10234
Invaliditätswahrscheinlichkeiten	Unter einjähriger Beobachtung gestandene Aktive	27,025.5	22,587.0	14,930.5	64,543.0
	Im Laufe des Jahres invalid geworden	846	427	317	1,590
	Durchschnittliche Invaliditätswahrscheinlichkeiten	0,03130	0.01890	0.02123	0.02463

TABELLE II.

Alter.	Sterbenswahrscheinlichkeiten der Männer insgesamt.	Sterbenswahrscheinlichkeiten der Aktiven.	Sterbenswahrscheinlichkeiten der Invaliden.	Invaliditätswahrscheinlichkeiten.
x	q_x	q_x^a	q_x^i	w_x^i
1	2	3	4	5
26	0.00701	0.00453	0.19371	0.00440
27	00703	00423	18668	00474
28	00754	00453	17992	00535
29	00833	00543	17344	00619
30	00886	00612	16725	00653
31	00887	00618	16133	00619
32	00855	00605	14811	00593
33	00887	00651	12947	00652
34	00953	00744	10823	00786
35	00965	00782	08555	00925
36	00927	00726	07402	01052
37	00920	00630	08222	01148
38	01039	00633	09995	01228
39	01202	00742	10681	01282
40	01303	00864	09769	01318
41	01276	00877	08218	01349
42	01253	00870	07921	01377
43	01347	00775	08978	01497
44	01593	00868	10415	01675
45	01842	01037	10874	01864
46	01955	01169	10006	01978
47	01931	01211	08534	02170
48	91868	01197	07157	02603
49	01909	01247	06335	03215
50	02063	01370	05943	03707
51	02337	01543	06092	03868
52	02674	01675	06795	03810
53	03047	01808	07791	03705
54	03372	01957	08515	03686
55	03544	02102	08577	03763
56	03609	02202	08280	03991
57	03745	02315	08167	04317
58	04130	02519	08640	04823
59	04590	02752	09271	05521
60	04925	02941	09516	06223
61	05135	03023	09460	06811
62	05434	03168	09466	07239
63	05899	03525	09697	07721
64	06364	04222	09552	08908
65	60762	05093	09052	10543
66	07054	05741	08544	11779
67	07388	05916	08623	12226
68	07764	05729	09169	12965
69	08265	05636	09856	14695
70	08673	05695	10223	17031
71	08807	05629	10125	18359
72	08747	05267	09827	18984
73	08885	05514	09695	19959
74	09774	07696	10229	21467
75	11327	07200	11363	21795

Die Beobachtung lieferte nur innerhalb der Altersgrenzen 26/75 brauchbare Wahrscheinlichkeiten. Die Ausdehnung nach oben und unten erfolgte mittelst parabolischer Auswertung, wobei es aus praktischen Gründen für die Berechnung der Rentenwerte zweckmässig erschien, die Ordnung der Aktiven mit dem Alter $76\frac{1}{2}$, die Ordnung der Invaliden mit dem Alter $90\frac{1}{2}$, und die Ordnung der Gesamtheit der Männer mit dem Alter $91\frac{1}{2}$ zu schliessen.

München, im April 1903.

INVALIDITY AND MORTALITY OF THE BENEVOLENT MINERS' SOCIETIES OF BAVARIA.

By Dr. J. Eggenberger,

Munich.

For the purpose of obtaining a technical insurance basis the Royal Bavarian Government has made, in 1902, a statistical inquiry on the conditions of mortality and incapacity to work, among the members of Benevolent miners' societies and among the workmen of national workshops.

The following professions and industrial groups were represented:

1. 3 collieries.
2. 6 foundries (2 of which have mines of siderite).
3. 4 salt works (of which one has a salt mine).

Whilst the number of regular workmen employed in these mines is limited—this figure, in 1901, amounted to 2,509—this statistical inquiry was extended over 30 years, that is to say, from 1870 to 1900.

The general results of the statistics are contained in the following tables.

In the first are represented the average industrial groups alone, without reference to age, mortality and invalidity. It appears that the deviation from the average probabilities is greater in the case of the invalidity than in the case of the mortality. Great differences are also found among the groups of similar industries. While these facts can be attributed partly to the uncertainty of the notion of invalidity, it is to be noticed also that the difference of invalidity benefits granted in individual industries is producing a great influence.

It is therefore permissible to conclude that by the very general participation in sick benefits the variations of invalidity approach more and more among the same groups of workmen and result in a certain uniformity.

In the second table, the Woolhouse method arranged so as to ascertain the simplified apparent comparative value is shown for all the industries having the purpose of offering special insurance.

INVALIDITÉ ET MORTALITÉ DES SOCIÉTÉS DE SECOURS MINIÉRES BAVAROISES.

Par le Dr. J. Eggenberger,

Munich.

Dans le but d'obtenir une base technique d'assurance le gouvernement royal Bavarois a institué, en 1902, une enquête statistique sur les conditions de mortalité et d'incapacité au travail parmi les membres des sociétés de secours minières et parmi les ouvriers des ateliers nationaux.

Les professions et groupes industriels suivants y étaient représentés:

1. 3 Houillières.
2. 6 Fonderies (dont 2 avec mines de sidérite).
3. 4 Exploitations salines (dont l'une avec mine de sel gemme).

Tandis que le nombre des ouvriers réguliers employés dans ces exploitations est limité,—en 1901 ce chiffre se montait à 2509,—cette enquête statistique dût s'étendre à 30 ans, c'est à dire de 1870 à 1900.

Nous donnons les résultats généraux de la statistique dans les 2 tableaux suivants:

Dans le premier se trouve représenté les moyennes des groupes industriels seuls, sans égard à l'âge, à la mortalité et aux invalides.

Il en ressort que la déviation des probabilités d'invalides moyennes est supérieure chez les invalidés que dans la mortalité. De grandes différences se produisent aussi partiellement pour les industries dans les groupes industriels semblables. Quand cet état de choses peut être attribué partiellement à l'incertitude de l'état invalidé, il est à constater aussi d'autre part que la différence de l'élévation des loyers d'invalidés accordés aux industries particulières produit une grande influence. Il est par conséquent permis de conclure que par la participation générale des loyers et l'administration des fonds les différences de l'invalidation se différencient de plus en plus parmi les mêmes groupes de travailleurs et donnent lieu à une certaine uniformité.

Dans le 2^{e} tableau sont démontrées les méthodes Woolhouse, arrangées dans le dessein d'assurer la valeur apparente comparative simplifiée pour toutes les industries dans un but d'assurance technique.

A COMPARISON OF THE O^{M} TABLE OF MORTALITY WITH THE (ADJUSTED) AMERICAN TABLE.

By Ralph P. Hardy, F.I.A.

London.

1. It has occurred to me that the Conference will be interested in seeing the points where the O^{M} Table of Mortality, recently published by the Institute of Actuaries, differs from the American Table, which is the standard of measurement adopted in the United States—using the Table as adjusted by Mr. Arthur Hunter according to Makeham's hypothesis.

2. While the differences shown by the experience recorded in any two Tables can be exhibited in various forms, I have, as the result of further consideration, retained the method of comparison that I submitted to the Institute of Actuaries on the 3rd of June, 1901, when reporting the publication of the new Tables.

3. The principle involved is to reduce the numbers living at any age to a common radix, and then to show the difference of the number of survivors at each subsequently attained age. It will be found that up to a certain point the deaths are accelerated and the others retarded, and that, after that point has been passed, the experience is reversed; or the deaths may be at first retarded and subsequently accelerated.

4. Appended hereto are Tables showing, for each fifth entry age, commencing at 20, the number of survivors at each subsequently attained age, together with the greater or less number of survivors according to the American Table, with corresponding results for the deaths.

5. For example, at entry age 30, down to age 44, the number of survivors brought forward at each age by the American Table were 1625.6 less than those of the O^{M} Table (viz., 219.8 + 619.4 + 786.4), that is to say, in that period the American contributors would have paid 1625.6 less number of premiums, which, with interest, would have entailed a loss on the common fund. In the deaths in the same period, the American claims would have been 159.1 greater than those of the O^{M} (viz., 100 + 50.8 + 9.9 — 1.6), that is to say, up to that point, 159.1 additional claims, with loss of interest, would have to have been provided out of the common fund.

6. It will be seen that these several losses are subsequently in part recouped, so that the difference between the discounted values of the profit and loss will account for the difference between the Single Premiums chargeable under the two Tables, and also may be shown to explain the difference between the Annual Premiums.

7. But, while the foregoing is merely of actuarial interest, it is of considerable practical importance to consider what effect upon the profits a variation in the mortality experienced from that assumed in the periodical calculation of the reserves would produce. This seems to me specially so, in the case of short term Endowment Assurances (now becoming so large a feature in the volume of business transacted). Since it is evident that, while a better mortality than that assumed in the valuation both makes the premium yield higher and the death claims less, it requires an additional valuation provision to be made for the larger number of survivors at each point.

8. While, probably, the results would vary in their incidence according to the Tables brought into contrast, it appears to me that one effect of a better mortality is to show a gradually reduced Surplus.

And, if this be the case, some care is necessary in relying upon future profits according to their past experience.

9. In order to supply some means of investigating this question, I have prepared the appended Table, showing the quinquennial Surplus or Deficiency arising where the premiums are charged and the Reserves made according to the American Table, and the mortality eventuates according to the O^M Table. And, in each case, the Profit or Loss arising from the greater or less Premium income, or from the less or greater number of death claims, are shown separately, together with the Profit or Loss necessitated by the Valuation provision for a greater or less number of survivors at each point. These results are shown for Endowment Assurances for 15, 20 and 25 years, and, for the sake of further comparison, where the assurances are for the whole term of life.

TABLE SHOWING THE QUINQUENNIAL SURPLUS OR DEFICIENCY (AND ITS SOURCES) ARISING FROM 100,000 ENTRANTS, EACH ASSURED FOR 1 AND PAYING HUNTER'S MAKEHAMIZED AMERICAN PREMIUM, THE DEATH CLAIMS EVENTUATING ACCORDING TO THE Om TABLE. RESERVES ON THE AMERICAN BASIS. INTEREST 3 PER CENT.

Entry Age.	Duration.	Number of Lives.			Endowment Assurance, 15 Years.				Endowment Assurance, 20 Years.				Endowment Assurance, 25 Years.				Whole-term Assurance.				Duration.	Entry Age.
		Additional or Less (-) Premiums Received According to the Expectation.	Death Claims More or Less (-) than the Expectation.	Additional or Less (-) Survivors to be Accounted for in the Reserve.	Surplus or Deficiency (-) in the Quinquennial.	Analysis of the Sources of the Surplus or Deficiency.			Surplus or Deficiency(-) in the Quinquennial.	Analysis of the Sources of the Surplus or Deficiency.			Surplus or Deficiency(-) in the Quinquennial.	Analysis of the Sources of the Surplus or Deficiency.			Surplus or Deficiency(-) in the Quinquennial.	Analysis of the Sources of the Surplus or Deficiency.				
						Profit or Loss(-)from Premiums Received from the Larger or Smaller No. of Surv.	Profit or Loss(-)from Relief or Additional Burden from Death Claims.	Profit or Loss(-)from Reserve due to Smaller or Larger Number of Survivors.		Profit or Loss(-)from Premiums Received from the Larger or Smaller No. of Surv.	Profit or Loss(-)from Relief or Additional Burden from Death Claims.	Profit or Loss(-)from Reserve due to Smaller or Larger No. of Survivors.		Profit or Loss(-)from Premiums Received from the Larger or Smaller No. of Surv.	Profit or Loss(-)from Relief or Additional Burden from Death Claims.	Profit or Loss(-)from Reserve due to Smaller or Larger No. of Survivors.		Profit or Loss(-)from Premiums Received from the Larger or Smaller No. of Surv.	Profit or Loss(-)from Relief or Additional Burden from Death Claims.	Profit or Loss(-)from Reserve due to Smaller or Larger No. of Survivors.			
25	5	3,034	—1,418	1,418	1,307	183	1,512	—388	1,381	132	1,512	—263	1,424	103	1,512	191	1,499	52	1,512	—65	5	25
	10	9,114	—915	2,333	583	561	978	—956	737	406	978	—647	826	316	978	468	981	159	978	—156	10	
	15	12,703	—432	2,765	113	785	464	—1,136	267	568	464	—765	356	442	464	550	511	223	464	—176	15	
	20	14,014	—16	2,781	.....	.....	.....	.....	35	628	22	—615	75	489	22	436	144	247	22	—125	20	
	25	13,341	352	2,429	.....	.....	.....	.....	.....	.....	.....	.....	—15	466	—369	112	—139	235	—369	—5	25	
30	5	2,198	—1,000	1,000	928	133	1,068	—273	979	97	1,068	—186	1,008	76	1,068	135	1,055	43	1,068	—56	5	30
	10	6,194	—508	1,508	338	384	545	—591	424	279	545	—400	473	218	545	290	551	123	545	—117	10	
	15	7,864	—83	1,591	43	489	93	—539	87	355	93	—361	113	278	93	258	153	157	93	—97	15	
	20	7,525	285	1,306	.....	.....	.....	.....	—18	341	—298	—61	—69	267	—298	38	—149	151	—298	— 2	20	
	25	5,426	611	695	.....	.....	.....	.....	.....	.....	.....	.....	—60	193	—645	392	—372	109	—645	—164	25	
35	5	1,325	—571	571	537	81	612	—156	565	59	612	—106	581	47	612	78	603	30	612	—39	5	35
	10	3,289	—137	708	112	206	151	—245	136	151	151	—166	150	119	151	120	168	76	150	—58	10	
	15	3,205	238	470	—23	202	—248	23	—82	148	—248	18	116	117	—248	15	—163	74	—248	11	15	
	20	1,337	564	—94	.....	.....	.....	.....	—71	63	—595	461	—211	50	—595	334	—407	32	—595	156	20	
	25	—1,998	790	—884	.....	.....	.....	.....	.....	.....	.....	.....	—102	—71	—837	806	—545	45	—837	337	25	
40	5	512	—173	173	174	32	189	—47	180	23	189	—32	184	19	189	24	189	14	189	—14	5	40
	10	580	215	—42	—106	38	—224	80	—141	28	—224	55	—161	22	—224	41	—184	16	—224	24	10	
	15	—1,184	546	—588	—91	—74	—576	559	—255	—54	—576	375	—347	—44	—576	273	—454	31	—576	153	15	
	20	—4,438	773	—1,361	.....	.....	.....	.....	—123	—207	—819	903	—347	—167	—819	639	—609	119	—819	329	20	
	25	—8,361	736	—2,097	.....	.....	.....	.....	.....	.....	.....	.....	—131	—316	—784	969	—591	225	—784	418	25	
45	5	—278	214	—214	—182	—17	—223	58	—196	—13	—223	40	—203	—11	—223	31	—210	9	—223	22	5	45
	10	—2,072	562	—776	—330	—133	—593	396	—424	—100	—593	269	—474	—83	—593	202	—522	66	—593	137	10	
	15	—5,422	797	—1,573	—160	—351	—845	1,036	—424	—265	—845	686	—564	—218	—845	499	—699	174	—845	320	15	
	20	—9,459	754	—2,327	.....	.....	.....	.....	—159	—463	—803	1,107	—425	—382	—803	760	—677	305	—803	431	20	
	25	—12,452	258	—2,585	.....	.....	.....	.....	.....	.....	.....	.....	—124	—505	—283	664	—449	403	—283	237	25	

ENTRY AGE, 20.

Age.	No. of Survivors.		"American" Survivors.		Deaths.		Deaths of "American."	
	"American."	O^M.	Greater.	Less.	"American."	O^M.	Greater.	Less.
20	10000.	10000.	.....	.....	78.4	40.4	38.	.....
1	9921.6	9959.6	.....	38.	78.1	41.7	36.4	.....
2	9843.5	9917.9	.....	74.4	77.9	42.6	35.3	.....
3	9765.6	9875.3	.....	109.7	77.5	44.	33.5	.....
4	9688.1	9831.3	.....	143.2	77.3	45.6	31.7	.....
	49218.8	49584.1	.....	365.3	389.2	214.3	174.9	.....
25	9610.8	9785.7	.....	174.9	77.1	47.	30.1	.....
6	9533.7	9738.7	.....	205.	77.2	48.8	28.4	.....
7	9456.5	9689.9	.....	233.4	77.	50.7	26.3	.....
8	9379.5	9639.2	.....	259.7	76.8	52.5	24.3	.....
9	9302.7	9586.7	.....	284.	77.2	54.6	22.6	.....
	47283.2	48440.2	.....	1157.	385.3	253.6	131.7	.....
30	9225.5	9532.1	.....	306.6	77.	56.6	20.4	.....
1	9148.5	9475.5	.....	327.	77.2	58.8	18.4	.....
2	9071.3	9416.7	.....	345.4	77.6	61.1	16.5	.....
3	8993.7	9355.6	.....	361.9	77.7	63.4	14.3	.....
4	8916.0	9292.2	.....	376.2	78.3	65.4	12.9	.....
	45355.0	47072.1	.....	1717.1	387.8	305.3	82.5	.....
35	8837.7	9226.8	.....	389.1	78.8	68.2	10.6	.....
6	8758.9	9158.6	.....	399.7	79.1	70.6	8.5	.....
7	8679.8	9088.0	.....	408.2	80.2	73.1	7.1	.....
8	8599.6	9014.9	.....	415.3	80.8	75.7	5.1	.....
9	8518.8	8939.2	.....	420.4	82.	78.3	3.7	.....
	43394.8	45427.5	.....	2032.7	400.9	365.9	35.	.....
40	8436.8	8860.9	.....	424.1	82.9	81.	1.9	.....
1	8353.9	8779.9	.....	426.	84.2	84.1	.1	.....
2	8269.7	8695.8	.....	426.1	86.	87.1	.....	1.1
3	8183.7	8608.7	.....	425.	87.3	90.1	.....	2.8
4	8096.4	8518.6	.....	422.2	89.2	93.6	.....	4.4
	41340.5	43463.9	.....	2123.4	429.6	435.9	2.0	8.3
45	8007.2	8425.0	.....	417.8	91.5	97.2	.....	5.7
6	7915.7	8327.8	.....	412.1	93.7	101.	.....	7.3
7	7822.0	8226.8	.....	404.8	96.3	105.	.....	8.7
8	7725.7	8121.8	.....	396.1	99.3	109.3	.....	10.
9	7626.4	8012.5	.....	386.1	102.4	113.9	.....	11.5
	39097.	41113.9	.....	2016.9	483.2	526.4	.....	43.2
50	7524.0	7898.6	.....	374.6	105.9	118.8	.....	12.9
1	7418.1	7779.8	.....	361.7	109.9	124.2	.....	14.3
2	7308.2	7655.6	.....	347.4	114.	129.5	.....	15.5
3	7194.2	7526.1	.....	331.9	118.8	135.5	.....	16.7
4	7075.4	7390.6	.....	315.2	123.7	141.6	.....	17.9
	36519.9	38250.7	.....	1730.8	572.3	649.6	.....	77.3
55	6951.7	7249.0	.....	297.3	129.1	148.3	.....	19.2
6	6822.6	7100.7	.....	278.1	135.2	155.1	.....	19.9
7	6687.4	6945.6	.....	258.2	141.3	162.3	.....	21.
8	6546.1	6783.3	.....	237.2	148.3	170.	.....	21.7
9	6397.8	6613.3	.....	215.5	155.6	177.8	.....	22.2
	33405.6	34691.9	.....	1286.3	709.5	813.5	.....	104.

ENTRY AGE, 20—*Continued.*

Age.	No. of Survivors.		"American" Survivors.		Deaths.		Deaths of "American."	
	"American."	O^M.	Greater.	Less.	"American."	O^M.	Greater.	Less.
60	6242.2	6435.5	.....	193.3	163.2	185.8	.....	22.6
1	6079.0	6249.7	.....	170.7	171.7	194.1	.....	22.4
2	5907.3	6055.6	.....	148.3	179.9	202.4	.....	22.5
3	5727.4	5853.2	.....	125.8	188.9	211.	.....	22.1
4	5538.5	5642.2	.....	103.7	198.1	219.2	.....	21.1
	29494.4	30236.2	.....	741.8	901.8	1012.5	.....	110.7
65	5340.4	5423.0	.....	82.6	207.8	227.6	.....	19.8
6	5132.6	5195.4	.....	62.8	217.	235.4	.....	18.4
7	4915.6	4960.0	.....	44.4	226.4	243.1	.....	16.7
8	4689.2	4716.9	.....	27.7	235.7	249.9	.....	14.2
9	4453.5	4467.0	.....	13.5	244.5	256.1	.....	11.6
	24531.3	24762.3	.....	231.	1131.4	1212.1	.....	80.7
70	4209.0	4210.9	.....	1.9	252.6	261.4	.....	8.8
1	3956.4	3949.5	6.9	.....	259.9	265.6	.....	5.7
2	3696.5	3683.9	12.6	.....	265.8	268.2	.....	2.4
3	3430.7	3415.7	15.	.....	270.4	269.5	.9	.....
4	3160.3	3146.2	14.1	.....	273.1	269.	4.1	.....
	18452.9	18406.2	48.6	1.9	1321.8	1333.7	5.0	16.9
75	2887.2	2877.2	10.	.....	273.8	266.5	7.3	.....
6	2613.4	2610.7	2.7	.....	271.8	262.2	9.6	.....
7	2341.6	2348.5	.....	6.9	267.3	255.6	11.7	.....
8	2074.3	2092.9	.....	18.6	259.8	246.8	13.	.....
9	1814.5	1846.1	.....	31.6	249.4	236.6	13.4	.....
	11731.	11775.4	12.7	57.1	1322.1	1267.1	55.	.....
80	1565.1	1610.1	.....	45.	236.1	222.9	13.2	.....
1	1329.0	1387.2	.....	58.2	219.8	208.1	11.7	.....
2	1109.2	1179.1	.....	69.9	201.13	191.48	9.65	.....
3	908.07	987.62	.....	79.55	180.42	173.55	6.87	.....
4	727.65	814.07	.....	86.42	158.19	154.79	3.4	.....
	5639.02	5978.09	.....	339.07	995.64	950.82	44.82	.....
85	569.46	659.28	.....	89.82	135.51	135.61	.....	.1
6	433.95	523.67	.....	89.72	112.84	116.33	.....	3.49
7	321.11	407.34	.....	86.23	91.12	97.76	.....	6.64
8	229.99	309.58	.....	79.59	71.16	80.14	.....	8.98
9	158.83	229.44	.....	70.61	53.45	63.97	.....	10.52
	1713.34	2129.31	.....	415.97	464.08	493.81	.....	29.73
90	2105.38	165.47	.....	60.09	38.544	49.77	.....	11.226
1	66.836	115.70	.....	48.864	26.454	37.321	.....	10.867
2	40.382	78.379	.....	37.997	17.276	27.266	.....	9.99
3	23.106	51.113	.....	28.007	10.689	18.973	.....	8.284
4	12.417	32.140	.....	19.723	6.1545	12.856	.....	6.7015
	248.121	442.802	.....	194.681	99.1175	146.186	.....	47.0685
95	6.2625	19.284	.....	13.0215	3.3472	8.191	.....	4.8438
6	2.9153	11.093	.....	8.1777	1.7276	5.0797	.....	3.3521
7	1.1877	6.0133	.....	4.8256	.7558	6.0133	.....	5.2575
8	.43190	.....	.43190	.....	.32393	.....	.32393	.....
9	.19797	.....	.10797	.....	.10797	.....	.10797	.....
	10.90537	36.3903	.53987	26.0248	6.2625	19.284	.4319	13.4534

ENTRY AGE, 25.

Age.	No. of Survivors.		"American" Survivors.		Deaths.		Deaths of "American."	
	"American."	O^M.	Greater.	Less.	"American."	O^M.	Greater.	Less.
25	10000.	10000.	.....	.....	80.3	48.	32.3	.....
6	9919.7	9952.0	.....	32.3	80.3	49.8	30.5	.....
7	9839.4	9902.2	.....	62.8	80.1	51.9	28.2	.....
8	9759.3	9850.3	.....	91.	79.9	53.6	26.3	.....
9	9679.4	9796.7	.....	117.3	80.3	55.8	24.5	.....
	49197.8	49501.2	.....	303.4	400.9	259.1	141.8	.....
30	9599.1	9740.9	.....	141.8	80.1	57.9	22.2	.....
1	9519.0	9683.0	.....	164.	80.3	60.	20.3	.....
2	9438.7	9623.0	.....	184.3	80.8	62.5	18.3	.....
3	9357.9	9560.5	.....	202.6	80.8	64.7	16.1	.....
4	9277.1	9495.8	.....	218.7	81.5	66.9	14.6	.....
	47191.8	48103.2	.....	911.4	403.5	312.	91.5	.....
35	9195.6	9428.9	.....	233.3	82.	69.7	12.3	.....
6	9113.6	9359.2	.....	245.6	82.3	72.1	10.2	.....
7	9031.3	9287.1	.....	255.8	83.4	74.8	8.6	.....
8	8947.9	9212.3	.....	264.4	84.1	77.3	6.8	.....
9	8863.8	9135.0	.....	271.2	85.3	80.	5.3	.....
	45152.2	46422.5	.....	1270.3	417.1	373.9	43.2	.....
40	8778.5	9055.	.....	276.5	86.3	82.8	3.5	.....
1	8692.2	8972.2	.....	280.	87.6	85.9	1.7	.....
2	8604.6	8886.3	.....	281.7	89.5	89.	.5	.....
3	8515.1	8797.3	.....	282.2	90.9	92.1	.....	1.2
4	8424.2	8705.2	.....	281.	92.8	95.7	.....	2.9
	43014.6	44416.	.....	1401.4	447.1	445.5	5.7	4.1
45	8331.4	8609.5	.....	278.1	95.1	99.3	.....	4.2
6	8236.3	8510.2	.....	273.9	97.5	103.2	.....	5.7
7	8138.8	8407.	.....	268.2	100.2	107.3	.....	7.1
8	8038.6	8299.7	.....	261.1	103.4	111.7	.....	8.3
9	7935.2	8188.	.....	252.8	106.5	116.4	.....	9.9
	40680.3	42014.4	.....	1334.1	502.7	537.9	.....	35.2
50	7828.7	8071.6	.....	242.9	110.3	121.4	.....	11.1
1	7718.4	7950.2	.....	231.8	114.3	126.9	.....	12.6
2	7604.1	7823.3	.....	219.2	118.6	132.3	.....	13.7
3	7485.7	7691.	.....	205.5	123.6	138.5	.....	14.9
4	7361.9	7552.5	.....	190.6	128.7	144.7	.....	16.
	37998.6	39088.6	.....	1090.	595.5	663.8	.....	68.3
55	7233.2	7407.8	.....	174.6	134.3	151.6	.....	17.3
6	7098.9	7256.2	.....	157.3	140.6	158.5	.....	17.9
7	6958.3	7097.7	.....	139.4	147.2	165.8	.....	18.6
8	6811.1	6931.9	.....	120.8	154.2	173.7	.....	19.5
9	6656.9	6758.2	.....	101.3	161.9	181.8	.....	19.9
	34758.4	35451.8	.....	693.4	738.2	831.4	.....	93.2
60	6495.0	6576.4	.....	81.4	169.9	189.8	.....	19.9
1	6325.1	6386.6	.....	61.5	178.6	198.3	.....	19.7
2	6146.5	6188.3	.....	41.8	187.1	206.9	.....	19.8
3	5959.4	5981.4	.....	22.	196.6	215.6	.....	19.
4	5762.8	5765.8	.....	3.	206.2	224.	.....	17.8
	30688.8	30898.5	.....	209.7	938.4	1034.6	.....	96.2

ENTRY AGE, 25—*Continued.*

Age.	No. of Survivors.		"American" Survivors.		Deaths.		Deaths of "American."	
	"American."	O^M.	Greater.	Less.	"American."	O^M.	Greater.	Less.
65	5556.6	5541.8	14.8	.....	216.1	232.6	.....	16.5
6	5340.5	5309.2	31.3	.....	225.8	240.6	.....	14.8
7	5114.7	5068.6	46.1	.....	235.6	248.3	.....	12.7
8	4879.1	4820.3	58.8	.....	245.3	255.4	.....	10.1
9	4633.8	4564.9	68.9	.....	254.3	261.8	.....	7.5
	25524.7	25304.8	219.9	.....	1177.1	1238.7	.....	61.6
70	4379.5	4303.1	76.4	.....	262.9	267.1	.....	4.2
1	4116.6	4036.	80.6	.....	270.4	271.4	.....	1.
2	3846.2	3764.6	81.6	.....	276.6	274.1	2.5	.....
3	3569.6	3490.5	79.1	.....	281.3	275.4	5.9	.....
4	3288.3	3215.1	73.2	.....	284.2	274.9	9.3	.....
	19200.2	18809.3	390.9	.....	1375.4	1362.9	17.7	5.2
75	3004.1	2940.2	63.9	.....	284.8	272.4	12.4	.....
6	2719.3	2667.8	51.5	.....	282.8	267.9	14.9	.....
7	2436.5	2399.9	36.6	.....	278.2	261.1	17.1	.....
8	2158.3	2138.8	19.5	.....	270.3	252.3	18.	.....
9	1888.0	1886.5	1.5	.....	259.5	241.1	18.4	.....
	12206.2	12033.2	173.	.....	1375.6	1294.8	80.8	.....
80	1628.5	1645.4	.....	16.9	245.6	227.8	17.8	.....
1	1382.9	1417.6	.....	34.7	228.8	212.6	16.2	.....
2	1154.1	1205.	.....	50.9	209.26	195.7	13.56	.....
3	944.84	1009.3	.....	64.46	187.73	177.4	10.33	.....
4	757.11	831.9	.....	74.79	164.59	158.18	6.41	.....
	5867.45	6109.2	.....	241.75	1035.98	971.68	64.3	.....
85	592.52	673.72	.....	81.2	141.	138.58	2.42	.....
6	451.52	535.14	.....	83.62	117.4	118.87	.....	1.47
7	334.12	416.27	.....	82.15	94.84	99.91	.....	5.09
8	239.30	316.36	.....	77.06	74.04	81.9	.....	7.86
9	165.26	234.46	.....	69.2	55.61	65.37	.....	9.76
	1782.72	2175.95	.....	393.23	482.87	504.63	2.42	24.18
90	109.65	169.09	.....	59.44	40.108	50.85	.....	10.742
1	69.542	118.24	.....	48.698	27.525	38.144	.....	10.619
2	42.017	80.096	.....	38.079	17.975	27.864	.....	9.889
3	24.042	52.232	.....	28.19	11.122	19.388	.....	8.266
4	12.920	32.844	.....	19.924	6.4039	13.138	.....	6.7341
	258.171	452.502	.....	194.331	103.1339	149.384	.....	46.2501
95	6.5161	19.706	.....	13.1899	3.4828	8.37	.....	4.8872
6	3.0333	11.336	.....	8.3027	1.7975	5.191	.....	3.3935
7	1.2358	6.145	.....	4.9092	.78641	6.145	.....	5.35859
8	.44939	.....	.44939	.....	.33704	.....	.33704	.....
9	.11235	.....	.11235	.....	.11235	.....	.11235	.....
	11.34694	37.187	.56174	26.4018	6.5161	19.706	.44939	13.63929

ENTRY AGE, 30.

Age.	No. of Survivors.		"American" Survivors.		Deaths.		Deaths of "American."	
	"American."	O^M.	Greater.	Less.	"American."	O^M.	Greater.	Less.
30	10000.	10000.	.....	.....	83.5	59.5	24.	.....
1	9916.5	9940.5	.....	24.	83.6	61.6	22.	.....
2	9832.9	9878.9	.....	46.	84.1	64.1	20.	.....
3	9748.8	9814.8	.....	66.	84.3	66.5	17.8	.....
4	9664.5	9748.3	.....	83.8	84.8	68.6	16.2	.....
	49162.7	49382.5	.....	219.8	420.3	320.3	100.	.....
35	9579.7	9679.7	.....	100.	85.5	71.5	14.	.....
6	9494.2	9608.2	.....	114.	85.7	74.1	11.6	.....
7	9408.5	9534.1	.....	125.6	86.9	76.7	10.2	.....
8	9321.6	9457.4	.....	135.8	87.6	79.4	8.2	.....
9	9234.	9378.	.....	144.	88.9	82.1	6.8	.....
	47038.	47657.4	.....	619.4	434.6	383.8	50.8	.....
40	9145.1	9295.9	.....	150.8	89.9	85.	4.9	.....
1	9055.2	9210.9	.....	155.7	91.2	88.3	2.9	.....
2	8964.0	9122.6	.....	158.6	93.3	91.3	2.	.....
3	8870.7	9031.3	.....	160.6	94.6	94.5	.1	.....
4	8776.1	8936.8	.....	160.7	96.7	98.3	.....	1.6
	44811.1	45597.5	.....	786.4	465.7	457.4	9.9	1.6
45	8679.4	8838.5	.....	159.1	99.1	101.9	.....	2.8
6	8580.3	8736.6	.....	156.3	101.6	106.	.....	4.4
7	8478.7	8630.6	.....	151.9	104.4	110.2	.....	5.8
8	8374.3	8520.4	.....	146.1	107.6	114.6	.....	7.
9	8266.7	8405.8	.....	139.1	111.	119.5	.....	8.5
	42379.4	43131.9	.....	752.5	523.7	552.2	.....	28.5
50	8155.7	8286.3	.....	130.6	114.9	124.6	.....	9.7
1	8040.8	8161.7	.....	120.9	119.1	130.3	.....	11.2
2	7921.7	8031.4	.....	109.7	123.6	135.9	.....	12.3
3	7798.1	7895.5	.....	97.4	128.7	142.1	.....	13.4
4	7669.4	7753.4	.....	84.	134.1	148.6	.....	14.5
	39585.7	40128.3	.....	542.6	620.4	681.5	.....	61.1
55	7535.3	7604.8	.....	69.5	139.9	155.6	.....	15.7
6	7395.4	7449.2	.....	53.8	146.5	162.7	.....	16.2
7	7248.9	7286.5	.....	37.6	153.3	170.3	.....	17.
8	7095.6	7116.2	.....	20.6	160.7	178.3	.....	17.6
9	6934.9	6937.9	.....	3.	168.6	186.6	.....	18.
	36210.1	36394.6	.....	184.5	769.	853.5	.....	84.5
60	6766.3	6751.3	15.	.....	177.	194.8	.....	17.8
1	6589.3	6556.5	32.8	.....	186.1	203.6	.....	17.5
2	6403.2	6352.9	50.3	.....	194.9	212.5	.....	17.6
3	6208.3	6140.4	67.9	.....	204.9	221.2	.....	16.3
4	6003.4	5919.2	84.2	.....	214.7	230.	.....	15.3
	31970.5	31720.3	250.2	.....	977.6	1062.1	.....	84.5
65	5788.7	5689.2	99.5	.....	225.2	238.8	.....	13.6
6	5563.5	5450.4	113.1	.....	235.2	247.	.....	11.8
7	5328.3	5203.4	124.9	.....	245.4	254.9	.....	9.5
8	5082.9	4948.5	134.4	.....	255.5	262.2	.....	6.7
9	4827.4	4686.3	141.1	.....	265.	268.8	.....	3.8
	26590.8	25977.8	613.	.....	1226.3	1271.7	.....	45.4

ENTRY AGE, 30—*Continued.*

Age.	No. of Survivors.		"American" Survivors.		Deaths.		Deaths of "American."	
	"American."	O^M.	Greater.	Less.	"American."	O^M.	Greater.	Less.
70	4562.4	4417.5	144.9	.....	273.9	274.2	.....	.3
1	4288.5	4143.3	145.2	.....	281.7	278.6	3.1	.....
2	4006.8	3864.7	142.1	.....	288.1	281.3	6.8	.....
3	3718.7	3583.4	135.3	.....	293.1	282.8	10.3	.....
4	3425.6	3300.6	125.	.....	296.1	282.2	13.9	.....
	20002.	19309.5	692.5	.....	1432.9	1399.1	34.1	.3
75	3129.5	3018.4	111.1	.....	296.7	279.6	17.1	.....
6	2832.8	2738.8	94.	.....	294.6	275.	19.6	.....
7	2538.2	2463.8	74.4	.....	289.8	268.2	21.6	.....
8	2248.4	2195.6	52.8	.....	281.6	258.9	22.7	.....
9	1966.8	1936.7	30.1	.....	270.3	247.6	22.7	.....
	12715.7	12353.3	362.4	.....	1433.	1329.3	103.7	.....
80	1696.5	1689.1	7.4	.....	255.9	233.8	22.1	.....
1	1440.6	1455.3	.....	14.7	238.3	218.3	20.	.....
2	1202.3	1237.	.....	34.7	217.99	200.9	17.09	.....
3	984.31	1036.1	.....	51.79	195.58	182.08	13.5	.....
4	788.73	854.02	.....	65.29	171.47	162.38	9.09	.....
	6112.44	6271.52	7.4	166.48	1079.24	997.46	81.78	.....
85	617.26	691.64	.....	74.38	146.88	142.26	4.62	.....
6	470.38	549.38	.....	79.	122.31	122.04	.27	.....
7	348.07	427.34	.....	79.27	98.78	102.57	.....	3.79
8	249.29	324.77	.....	75.48	77.13	84.07	.....	6.94
9	172.16	240.7	.....	68.54	57.93	67.11	.....	9.18
	1857.16	2233.83	.....	376.67	503.03	518.05	4.89	19.91
90	114.23	173.59	.....	59.36	41.783	52.21	.....	10.427
1	72.447	121.38	.....	48.933	28.675	39.154	.....	10.479
2	43.772	82.226	.....	38.454	18.726	28.604	.....	9.878
3	25.046	53.622	.....	28.576	11.586	19.905	.....	8.319
4	13.460	33.717	.....	20.257	6.6717	13.487	.....	6.8153
	268.955	464.535	.....	195.58	107.4417	153.36	.....	45.9183
95	6.7883	20.23	.....	13.4417	3.6283	8.592	.....	4.9637
6	3.1600	11.638	.....	8.478	1.8726	5.3296	.....	3.457
7	1.2874	6.3084	.....	5.021	.81924	6.3084	.....	5.48916
8	.46816	.....	.46816	.....	.35112	.....	.35112	.....
9	.11704	.....	.11704	.....	.11704	.....	.11704	.....
	11.82090	38.1764	.5852	26.9407	6.7883	20.23	.46816	13.90986

ENTRY AGE, 35.

Age.	No. of Survivors.		"American" Survivors.		Deaths.		Deaths of "American."	
	"American."	O^M.	Greater.	Less.	"American."	O^M.	Greater.	Less.
35	10000.	10000.	.....	.....	89.2	73.9	15.3	.....
6	9910.8	9926.1	.....	15.3	89.5	76.5	13.	.....
7	9821.3	9849.6	.....	28.3	90.7	79.3	11.4	.....
8	9730.6	9770.3	.....	39.7	91.4	81.9	9.5	.....
9	9639.2	9688.4	.....	49.2	92.8	84.9	7.9	.....
	49101.9	49234.4	.....	132.5	453.6	396.5	57.1	.....
40	9546.4	9603.5	.....	57.1	93.8	87.8	6.	.....
1	9452.6	9515.7	.....	63.1	95.3	91.2	4.1	.....
2	9357.3	9424.5	.....	67.2	97.3	94.3	3.	.....
3	9260.0	9330.2	.....	70.2	98.8	97.7	1.1	.....
4	9161.2	9232.5	.....	71.3	101.	101.5	.....	.5
	46777.5	47106.4	.....	328.9	466.2	472.5	14.2	.5
45	9060.2	9131.	.....	70.8	103.5	105.3	.....	1.8
6	8956.7	9025.7	.....	69.	106.	109.5	.....	3.5
7	8850.7	8916.2	.....	65.5	108.9	113.8	.....	4.9
8	8741.8	8802.4	.....	60.6	112.4	118.4	.....	6.
9	8629.4	8684.	.....	54.6	115.9	123.5	.....	7.6
	44238.8	44559.3	.....	320.5	546.7	570.5	.....	23.8
50	8513.5	8560.5	.....	47.	119.9	128.7	.....	8.8
1	8393.6	8431.8	.....	38.2	124.3	134.6	.....	10.3
2	8269.3	8297.2	.....	27.9	129.	140.4	.....	11.4
3	8140.3	8156.8	.....	16.5	134.4	146.8	.....	12.4
4	8005.9	8010.	.....	4.1	140.	153.5	.....	13.5
	41322.6	41456.3	.....	133.7	647.6	704.	.....	56.4
55	7865.9	7856.5	9.4	.....	146.	160.8	.....	14.8
6	7719.9	7695.7	24.2	.....	153.	168.	.....	15.
7	7566.9	7527.7	39.2	.....	159.9	176.	.....	16.1
8	7407.0	7351.7	55.3	.....	167.8	184.2	.....	16.4
9	7239.2	7167.5	71.7	.....	176.	192.7	.....	16.7
	37798.9	37599.1	199.8	.....	802.7	881.7	.....	79.
60	7063.2	6974.8	88.4	.....	184.8	201.3	.....	16.5
1	6878.4	6773.5	104.9	.....	194.2	210.4	.....	16.2
2	6684.2	6563.1	121.1	.....	203.5	219.4	.....	15.9
3	6480.7	6343.7	137.	.....	213.8	228.6	.....	14.8
4	6266.9	6115.1	151.8	.....	224.2	237.6	.....	13.4
	33373.4	32770.2	603.2	.....	1020.5	1097.3	.....	76.8
65	6042.7	5877.5	165.2	.....	235.1	246.7	.....	11.6
6	5807.6	5630.8	176.8	.....	245.5	255.2	.....	9.7
7	5562.1	5375.6	186.5	.....	256.2	263.4	.....	7.2
8	5305.9	5112.2	193.7	.....	266.7	270.8	.....	4.1
9	5039.2	4841.4	197.8	.....	276.6	277.7	.....	1.1
	27757.5	26837.5	920.	.....	1280.1	1313.8	.....	33.7

ENTRY AGE, 35—*Continued.*

Age.	No. of Survivors.		"American" Survivors.		Deaths.		Deaths of "American."	
	"American."	O^M.	Greater.	Less.	"American."	O^M.	Greater.	Less.
70	4762.6	4563.7	198.9	.....	285.9	283.2	2.7	.....
1	4476.7	4280.5	196.2	.....	294.1	287.9	6.2	.....
2	4182.6	3992.6	190.	.....	300.7	290.7	10.	.....
3	3881.9	3701.9	180.	.....	306.	292.1	13.9	.....
4	3575.9	3409.8	166.1	.....	309.	291.5	17.5	.....
	20879.7	19948.5	931.2	.....	1495.7	1445.4	17.5	.....
75	3266.9	3118.3	148.6	.....	309.8	288.9	20.9	.....
6	2957.1	2829.4	127.7	.....	307.5	284.1	23.4	.....
7	2649.6	2545.3	104.3	.....	302.5	277.	25 5	.....
8	2347.1	2268.3	78.8	.....	294.	267.5	26.5	.....
9	2053.1	2000.8	52.3	.....	282.2	255.8	26.4	.....
	13273.8	12762.1	511.7	.....	1496.	1373.3	122.7	.....
80	1770.9	1745.	25.9	.....	267.1	241.5	25.6	.....
1	1503.8	1503.5	.3	.....	248.7	225.6	23.1	.....
2	1255.1	1277.9	.....	22.8	227.6	207.5	20.1	.....
3	1027.5	1070.4	.....	42.9	204.16	188.11	16.05	.....
4	823.34	882.29	.....	58.95	178.99	167.76	11.23	.....
	6380.64	6479.09	26.2	124.65	1126.55	1030.47	96.08	.....
85	644.35	714.53	.....	70.18	153.33	146.97	6.36	.....
6	491.02	567.56	.....	76.54	127.67	126.08	1.59	.....
7	363.35	441.48	.....	78.13	103.12	105.96	.....	2.84
8	260.23	335.52	.....	75.29	80.51	86.86	.....	6.35
9	179.72	248.66	.....	68.94	60.48	69.33	.....	8.85
	1938.67	2307.75	.....	369.08	525.11	535.20	7.95	18.04
90	119.24	179.33	.....	60.09	43.614	53.93	.....	10.316
1	75.626	125.4	.....	49.774	29.933	40.453	.....	10.52
2	45.693	84.947	.....	39.254	19.548	29.551	.....	10.003
3	26.145	55.396	.....	29.251	12.095	20.563	.....	8.468
4	14.050	34.833	.....	20.783	6.9639	13.933	.....	6.9691
	280.754	479.906	.....	199.152	112.1539	158.430	.....	46.2761
95	7.0861	20.9	.....	13.8139	3.7874	8.877	.....	5.0896
6	3.2987	12.023	.....	8.7243	1.9548	5.5058	.....	3.551
7	1.3439	6.5172	.....	5.1733	.8552	6.5172	.....	5.662
8	.48870	.....	.48870	.....	.36653	.....	.36653	.....
9	.12217	.....	.12217	.....	.12217	.....	.12217	.....
	12.33957	39.4402	.61087	27.7115	7.0861	20.9	.4887	14.3026

ENTRY AGE, 40.

Age.	No. of Survivors.		"American" Survivors.		Deaths.		Deaths of "American."	
	"American."	O^M.	Greater.	Less.	"American."	O^M.	Greater.	Less.
40	10000.	10000.	.....	.....	98.3	91.5	6.8	.....
1	9901.7	9908.5	.....	6.8	99.3	94.9	4.9	.....
2	9801.9	9813.6	.....	11.7	101.9	98.2	3.7	.....
3	9700.0	9715.4	.....	15.4	103.6	101.7	1.9	.....
4	9596.4	9613.7	.....	17.3	105.7	105.7	.....	.....
	49000.	49051.2	.....	51.2	509.3	492.	17.3	.....
45	9490.7	9508.	.....	17.3	108.4	109.8	.....	1.4
6	9382.3	9398.2	.....	15.9	111.	113.9	.....	2.9
7	9271.3	9284.3	.....	13.	114.2	118.5	.....	4.3
8	9157.1	9165.8	.....	8.7	117.7	123.3	.....	5.6
9	9039.4	9042.5	.....	3.1	121.3	128.6	.....	7.3
	46340.8	46398.8	.....	58.	572.6	794.1	.....	21.5
50	8918.1	8913.9	4.2	.....	125.6	134.	.....	8.4
1	8792.5	8779.9	12.6	.....	130.3	140.2	.....	9.9
2	8662.2	8639.7	22.5	.....	135.1	144.1	.....	11.
3	8527.1	8493.6	33.5	.....	140.8	152.9	.....	12.1
4	8386.3	8340.7	45.6	.....	146.6	159.8	.....	13.2
	43286.2	43167.8	118.4	.....	678.4	733.	.....	54.6
55	8239.7	8180.9	58.8	.....	153.	167.8	.....	14.8
6	8086.7	8013.1	73.6	.....	160.2	174.7	.....	14.5
7	7926.5	7838.4	88.1	.....	167.6	183.1	.....	15.5
8	7758.9	7655.5	103.6	.....	175.7	191.8	.....	16.1
9	7583.2	7463.5	119.7	.....	184.4	200.8	.....	16.4
	39595.	39151.2	443.8	.....	840.9	918.2	.....	77.3
60	7398.8	7262.7	136.1	.....	193.5	209.6	.....	16.1
1	7205.3	7053.1	152.2	.....	203.5	219.	219.	15.5
2	7001.8	6834.1	167.7	.....	213.2	228.5	.....	15.3
3	6788.6	6605.6	183.	.....	224.	238.1	.....	14.1
4	6564.6	6367.5	197.1	.....	234.8	247.4	.....	12.6
	34959.1	34125.	836.1	.....	1069.	1142.6	.....	73.6
65	6329.8	6120.1	209.7	.....	246.2	256.8	.....	10.6
6	6083.6	5863.3	220.3	.....	257.2	265.7	.....	8.5
7	5826.4	5597.6	228.8	.....	268.4	274.4	.....	6.
8	5558.0	5323.2	234.8	.....	279.4	281.9	.....	2.5
9	5278.6	5041.3	237.3	.....	289.8	289.2	.6	.....
	29076.4	27945.5	1130.9	.....	1341.	1368.	.6	27.6
70	4988.8	4752.1	236.7	.....	299.4	294.9	4.5	.....
1	4689.4	4457.2	232.2	.....	308.	299.7	8.3	.....
2	4381.4	4157.5	223.9	.....	315.1	302.7	12.4	.....
3	4066.3	3854.8	211.5	.....	320.5	304.2	16.3	.....
4	3745.8	3550.6	195.2	.....	323.7	303.5	20.2	.....
	21871.7	20772.2	1099.5	.....	1566.7	1505.	61.7	.....

ENTRY AGE, 40—*Continued.*

Age.	No. of Survivors.		"American" Survivors.		Deaths.		Deaths of "American"	
	"American."	O^M.	Greater.	Less.	"American."	O^M.	Greater.	Less.
75	3422.1	3247.1	175.	.....	324.5	300.8	23.7	.....
6	3097.6	2946.3	151.3	.....	322.1	295.9	26.2	.....
7	2775.5	2650.4	125.1	.....	316.9	288.5	28.4	.....
8	2458.6	2361.9	96.7	.....	307.9	278.5	29.4	.....
9	2150.7	2083.4	67.3	.....	295.6	266.3	29.3	.....
	13904.5	13289.1	615.4	.....	1567.	1430.	137.	.....
80	1855.1	1817.1	38.	.....	279.8	250.6	29.2	.....
1	1575.3	1566.5	8.8	.....	260.6	235.8	24.8	.....
2	1314.7	1330.7	.....	16.	238.4	216.1	22.3	.....
3	1076.3	1114.6	.....	38.3	213.84	195.89	17.95	.....
4	862.46	918.71	.....	56.25	187.5	174.68	12.82	.....
	6683.86	6747.61	46.8	110.55	1180.14	1073.07	107.07	.....
85	674.96	744.03	.....	69.07	160.61	153.04	7.57	.....
6	514.35	590.99	.....	76.64	133.74	131.28	2.46	.....
7	380.61	459.71	.....	79.1	108.01	110.34	.....	2.33
8	272.60	349.37	.....	76.77	84.34	90.44	.....	6.1
9	188.26	258.93	.....	70.67	63.35	72.19	.....	8.84
	2030.78	2403.03	.....	372.25	550.05	557.29	10.03	17.27
90	124.91	186.74	.....	61.83	45.691	56.16	.....	10.469
1	79.219	130.58	.....	51.361	31.355	42.125	.....	10.77
2	47.864	88.455	.....	40.591	20.477	30.772	.....	10.295
3	27.387	57.683	.....	30.296	12.669	21.412	.....	8.743
4	14.718	36.271	.....	21.553	7.2952	14.508	.....	7.2128
	294.098	499.729	.....	205.631	117.4872	164.977	.....	47.4898
95	7.4228	21.763	.....	14.3402	3.9674	9.244	.....	5.2766
6	3.4554	12.519	.....	9.0636	2.0476	5.7327	.....	3.6851
7	1.4078	6.7863	.....	5.3785	.89588	6.7863	.....	5.89042
8	.51192	.....	.51192	.....	.38394	.....	.38394	.....
9	.12798	.....	.12798	.....	.12798	.....	.12798	.....
	12.9259	41.0683	.6399	28.7823	7.4228	21.7630	.51192	14.85212

ENTRY AGE, 45.

Age.	No. of Survivors.		"American" Survivors.		Deaths.		Deaths of "American."	
	"American."	O^M.	Greater.	Less.	"American."	O^M.	Greater.	Less.
45	10000.	10000.	.....	.....	114.2	115.4	.....	1.2
6	9885.8	9884.6	1.2	.....	117.	119.9	.....	2.9
7	9768.8	9764.7	4.1	.....	120.3	124.6	.....	4.3
8	9648.5	9640.1	8.4	.....	124.	129.7	.....	5.7
9	9524.5	9510.4	14.1	.....	127.9	135.2	.....	7.3
	48827.6	48799.8	27.8	.....	603.4	624.8	.....	21.4
50	9396.6	9375.2	21.4	.....	132.4	141.	.....	8.6
1	9264.2	9234.2	30.	.....	137.2	147.4	.....	10.2
2	9127.0	9086.8	40.2	.....	142.4	153.7	.....	11.3
3	8984.6	8933.1	51.5	.....	148.3	160.9	.....	12.6
4	8836.3	8772.2	64.1	.....	154.5	168.	.....	13.5
	45608.7	45401.5	207.2	.....	714.8	771.	.....	56.2
55	8681.8	8604.2	77.6	.....	161.2	176.1	.....	14.9
6	8520.6	8428.1	92.5	.....	168.8	184.1	.....	15.3
7	8351.8	8244.	107.8	.....	176.6	192.6	.....	16.
8	8175.2	8051.4	123.8	.....	185.1	201.8	.....	16.7
9	7990.1	7849.6	140.5	.....	194.3	211.1	.....	16.8
	41719.5	41172.5	547.	.....	886.	965.7	.....	79.7
60	7795.8	7638.5	157.3	.....	203.9	220.4	.....	16.5
1	7591.9	7418.1	173.8	.....	214.4	230.4	.....	16.
2	7377.5	7187.7	189.8	.....	224.6	239.9	.....	15.3
3	7152.9	6947.8	205.1	.....	236.	250.8	.....	14.8
4	6916.9	6697.	219.9	.....	247.4	260.2	.....	12.8
	36835.	35889.1	945.9	.....	1126.3	1201.7	.....	75.4
65	6669.5	6436.8	232.7	.....	259.5	270.1	.....	10.6
6	6410.0	6166.7	243.3	.....	271.	279.5	.....	8.5
7	6139.0	5887.2	251.8	.....	282.7	288.5	.....	5.8
8	5856.3	5598.7	257.6	.....	294.4	296.6	.....	2.2
9	5561.9	5302.1	259.8	.....	305.4	304.1	1.3	.....
	30636.7	29391.5	1245.2	.....	1413.	1438.8	1.3	27.1
70	5256.5	4998.	258.5	.....	315.4	310.2	5.2	.....
1	4941.1	4687.8	253.3	.....	324.6	315.2	9.4	.....
2	4616.5	4372.6	243.9	.....	332.	318.4	13.6	.....
3	4284.5	4054.2	230.3	.....	337.7	319.9	17.8	.....
4	3946.8	3734.3	212.5	.....	341.1	319.2	21.9	.....
	23045.4	21846.9	1198.5	.....	1650.8	1582.9	67.9	.....
75	3605.7	3415.1	190.6	.....	341.9	316.4	25.5	.....
6	3263.8	3098.7	165.1	.....	339.4	311.2	28.2	.....
7	2924.4	2787.5	136.9	.....	333.9	303.3	30.6	.....
8	2590.5	2484.2	106.3	.....	324.4	293.	31.4	.....
9	2266.1	2191.2	74.9	.....	311.5	280.1	31.4	.....
	14650.5	13976.7	673.8	.....	1651.1	1504.	147.1	.....

ENTRY AGE, 45—*Continued.*

Age.	No. of Survivors.		"American" Survivors.		Deaths.		Deaths of "American."	
	"American."	O^M.	Greater.	Less.	"American."	O^M.	Greater.	Less.
80	1954.6	1911.1	43.5	.....	294.8	264.6	30.2	.....
1	1659.8	1646.5	13.3	.....	274.5	246.9	27.6	.....
2	1385.3	1399.6	.....	14.3	251.2	227.4	23.8	.....
3	1134.1	1172.2	.....	38.1	225.36	205.95	19.41	.....
4	908.74	966.25	.....	57.51	197.56	183.72	13.84	.....
	7042.54	7095.65	56.8	109.91	1243.42	1128.57	114.85	.....
85	711.18	782.53	.....	71.35	169.23	160.96	8.27	.....
6	541.95	621.57	.....	79.62	140.92	138.08	2.84	.....
7	401.03	483.49	.....	82.46	113.81	116.04	.....	2.23
8	287.22	367.	.....	80.23	88.86	95.12	.....	6.26
9	198.36	272.33	.....	73.97	66.75	75.93	.....	9.18
	2139.74	2527.37	.....	387.63	579.57	586.13	11.11	17.67
90	131.61	196.4	.....	64.79	48.14	59.07	.....	10.93
1	83.470	137.33	.....	53.86	33.038	44.299	.....	11.261
2	50.432	93.031	.....	42.599	21.575	32.363	.....	10.788
3	28.857	60.668	.....	31.811	13.35	22.52	.....	9.17
4	15.507	38.148	.....	22.641	7.6859	15.259	.....	7.5731
	309.876	525.577	.....	215.701	123.7889	173.511	.....	49.7221
95	7.8211	22.889	.....	15.0679	4.1803	9.722	.....	5.5417
6	3.6408	13.167	.....	9.5262	2.1575	6.0296	.....	3.8721
7	1.4833	7.1374	.....	5.6541	.94391	7.1374	.....	6.19349
8	.53939	.....	.53939	.....	.40454	.....	.40454	.....
9	.13485	.....	.13485	.....	.13485	.....	.13485	.....
	13.61944	43.1934	.67424	30.2482	7.8211	22.889	.53939	15.60729

ENTRY AGE, 50.

Age.	No. of Survivors.		"American" Survivors.		Deaths.		Deaths of "American."	
	"American."	O^M.	Greater.	Less.	"American."	O^M.	Greater.	Less.
50	10000.	10000.	.....	.....	140.8	150.4	.....	9.6
1	9859.2	9849.6	9.6	.....	146.1	157.2	.....	11.1
2	9713.1	9692.4	20.7	.....	151.5	164.	.....	12.5
3	9561.6	9528.4	33.2	.....	157.9	171.5	.....	13.6
4	9403.7	9356.9	46.8	.....	164.4	179.3	.....	14.9
	48537.6	48427.3	110.3	.....	760.7	822.4	.....	61.7
55	9239.3	9177.6	61.7	.....	171.5	187.8	.....	16.3
6	9067.8	8989.8	78.	.....	179.7	196.3	.....	16.6
7	8888.1	8793.5	94.6	.....	187.9	205.5	.....	17.6
8	8700.2	8588.	112.2	.....	197.	215.2	.....	18.2
9	8503.2	8372.8	130.4	.....	206.8	225.2	.....	18.4
	44398.6	4391.7	476.9	.....	942.9	1030.	.....	87.1
60	8296.4	8147.6	148.8	.....	217.	235.2	.....	18.2
1	8079.4	7912.4	167.	.....	228.1	245.7	.....	17.6
2	7851.3	7666.7	184.6	.....	239.1	256.3	.....	17.2
3	7612.2	7410.4	201.8	.....	251.1	267.1	.....	16.
4	7361.1	7143.3	217.8	.....	263.4	277.5	.....	14.1
	39200.4	38280.4	920.	.....	1198.7	1281.8	.....	83.1
65	7097.7	6865.8	231.9	.....	276.	288.2	.....	12.2
6	6821.7	6577.6	244.1	.....	288.4	298.	.....	9.6
7	6533.3	6279.6	253.7	.....	301.	307.7	.....	6.7
8	6232.3	5971.9	260.4	.....	313.3	316.4	.....	3.1
9	5919.0	5655.5	263.5	.....	324.9	324.4	.5	.....
	32604.	31350.4	1253.6	.....	1503.6	1534.7	.5	31.6
70	5594.1	5331.1	263.	.....	335.7	330.9	4.8	.....
1	5258.4	5000.2	258.2	.....	345.5	336.2	9.3	.....
2	4912.9	4664.	248.9	.....	353.3	339.6	13.7	.....
3	4559.6	4324.4	235.2	.....	359.3	341.2	18.1	.....
4	4200.3	3983.2	217.1	.....	363.1	340.5	22.6	.....
	24525.3	23302.9	1222.4	.....	1756.9	1688.4	68.5	.....
75	3837.2	3642.7	194.5	.....	363.8	337.5	26.3	.....
6	3473.4	3305.2	168.2	.....	361.2	331.9	29.3	.....
7	3112.2	2973.3	138.9	.....	355.3	323.6	31.7	.....
8	2756.9	2649.7	107.2	.....	345.3	312.5	32.8	.....
9	2411.6	2337.2	74.4	.....	331.5	298.7	32.8	.....
	15591.3	14908.1	683.2	.....	1757.1	1604.2	152.9	.....
80	2080.1	2038.5	41.6	.....	313.7	282.2	31.5	.....
1	1766.4	1756.3	10.1	.....	292.2	263.5	28.7	.....
2	1474.2	1492.8	.....	18.6	267.3	242.4	24.9	.....
3	1206.9	1250.4	.....	43.5	239.8	219.8	20.	.....
4	967.1	1030.6	.....	63.5	210.25	195.92	14.33	.....
	7494.7	7568.6	51.7	125.6	1323.25	1203.82	119.43	.....

ENTRY AGE, 50—*Continued.*

Age.	No. of Survivors.		"American" Survivors.		Deaths.		Deaths of "American."	
	"American."	O^M.	Greater.	Less.	"American."	O^M.	Greater.	Less.
85	756.85	834.68	.....	77.83	180.1	171.69	8.41	.....
6	576.75	662.99	.....	86.24	149.96	122.97	26.99	.....
7	426.79	540.02	.....	113.23	121.12	148.08	.....	26.96
8	305.67	391.94	.....	86.27	94.57	101.46	.....	6.89
9	211.10	290.48	.....	79.38	71.04	80.99	.....	9.95
	2277.16	2720.11	.....	442.95	616.79	625.19	35.4	43.8
90	140.06	209.49	.....	69.43	51.23	63.01	.....	11.78
1	88.83	146.48	.....	57.65	35.159	47.248	.....	12.089
2	53.671	99.232	.....	45.561	22.961	34.521	.....	11.56
3	30.71	64.711	.....	34.001	14.207	24.021	.....	9.814
4	16.503	40.69	.....	24.187	8.1796	16.276	.....	8.0964
	329.774	560.603	.....	230.829	131.7366	185.076	.....	53.3394
95	8.3234	24.414	.....	16.0906	4.4488	10.369	.....	5.9202
6	3.8746	14.045	.....	10.1704	2.296	6.4319	.....	4.1359
7	1.5786	7.6131	.....	6.0345	1.00458	7.6131	.....	6.60852
8	.57402	.....	.57402	.....	.43051	.....	.43051	.....
9	.14351	.....	.14351	.....	.14351	.....	.14351	.....
	14.49413	46.0721	.71753	32.2955	8.3234	24.414	.57402	16.66462

ENTRY AGE, 55.

Age.	No. of Survivors.		"American" Survivors.		Deaths.		Deaths of "American."	
	"American."	O^M.	Greater.	Less.	"American."	O^M.	Greater.	Less.
55	10000.	10000.	.....	.....	185.7	204.6	.....	18.9
6	9814.3	9795.4	18.9	.....	194.4	214.	.....	19.6
7	9619.9	9581.4	38.5	.....	203.4	223.9	.....	20.5
8	9416.5	9357.5	59.	.....	213.3	234.5	.....	21.2
9	9203.2	9123.	80.2	.....	223.7	245.3	.....	21.6
	48053.9	47857.3	196.6	.....	1020.5	1122.3	.....	101.8
60	8979.5	8877.7	101.8	.....	234.9	256.3	.....	21.4
1	8744.6	8621.4	123.2	.....	246.9	267.7	.....	20.8
2	8497.7	8353.7	144.	.....	258.8	279.3	.....	20.5
3	8238.9	8074.4	164.5	.....	271.8	291.	.....	19.2
4	7967.1	7783.4	183.7	.....	285.	302.4	.....	17.4
	42427.8	41710.6	717.2	.....	1297.4	1396.7	.....	99.3
65	7682.1	7481.	201.1	.....	298.8	314.	.....	15.2
6	7383.3	7167.	216.3	.....	312.2	324.7	.....	12.5
7	7071.1	6842.3	228.8	.....	325.7	335.3	.....	9.6
8	6745.4	6507.	238.4	.....	339.1	344.7	.....	5.6
9	6406.3	6162.3	244.	.....	351.6	353.5	.....	1.9
	35288.2	34159.6	1128.6	.....	1627.4	1672.2	.....	44.8
70	6054.7	5808.8	245.9	.....	363.4	360.5	2.9	.....
1	5691.3	5448.3	243.	.....	373.9	366.4	7.5	.....
2	5317.4	5081.9	235.5	.....	382.4	370.	12.4	.....
3	4935.	4711.9	223.1	.....	388.9	371.8	17.1	.....
4	4546.1	4340.1	206.	.....	392.9	371.	21.9	.....
	26544.5	25391.0	1153.5	.....	1901.5	1839.7	61.8	.....
75	4153.2	3969.1	184.1	.....	393.8	367.7	26.1	.....
6	3759.4	3601.4	158.	.....	391.	361.7	29.3	.....
7	3368.4	3239.7	128.7	.....	384.5	352.5	32.	.....
8	2983.9	2887.2	96.7	.....	373.7	340.5	33.2	.....
9	2610.2	2546.7	63.5	.....	358.8	325.6	33.2	.....
	16875.1	16244.1	631.	.....	1901.8	1748.	153.8	.....
80	2251.4	2221.1	30.3	.....	339.6	307.5	32.1	.....
1	1911.8	1913.6	.....	1.8	316.2	287.	29.2	.....
2	1595.6	1626.6	.....	31.	289.3	264.2	25.1	.....
3	1306.3	1362.4	.....	56.1	259.6	239.4	20.2	.....
4	1046.7	1123.	.....	76.3	227.54	213.53	14.01	.....
	8111.8	8246.7	30.3	165.2	1432.24	1311.63	120.61	.....
85	819.16	909.47	.....	90.31	194.92	187.07	7.85	.....
6	624.24	722.4	.....	98.16	162.32	160.47	1.85	.....
7	461.92	561.93	.....	100.01	131.09	134.87	.....	3.78
8	330.83	427.06	.....	96.23	102.35	110.56	.....	8.21
9	228.48	316.5	.....	88.02	76.89	88.24	.....	11.35
	2464.63	2937.36	.....	472.73	667.57	681.21	9.7	23.34

ENTRY AGE, 55—*Continued.*

Age.	No. of Survivors.		"American" Survivors.		Deaths.		Deaths of "American."	
	"American."	O^M.	Greater.	Less.	"American."	O^M.	Greater.	Less.
90	151.59	228.26	.....	76.67	55.446	68.65	.....	13.204
1	96.144	159.61	.....	63.466	38.054	51.49	.....	13.436
2	58.090	108.12	.....	50.03	24.852	37.61	.....	12.758
3	33.238	70.51	.....	37.272	15.376	26.174	.....	10.798
4	17.862	44.336	.....	26.474	8.8533	17.734	.....	8.8807
	356.924	610.836	.....	253.912	142.5813	201.658	.....	59.0767
95	9.0087	26.602	.....	17.5933	4.8151	11.299	.....	6.4839
6	4.1936	15.303	.....	11.1094	2.4851	7.0077	.....	4.5226
7	1.7085	8.2953	.....	6.5868	1.08722	8.2953	.....	7.20808
8	.62128	.....	.62128	.....	.46596	.....	.46596	.....
9	.15532	.....	.15532	.....	.15532	.....	.15532	.....
	15.6874	50.2003	.7766	35.2895	9.0087	26.602	.62128	18.21458

ENTRY AGE, 60.

Age.	No. of Survivors.		"American" Survivors.		Deaths.		Deaths of "American."	
	"American."	O^M.	Greater.	Less.	"American."	O^M.	Greater.	Less.
60	10000.	10000.	.....	.....	261.5	288.6	.....	27.1
1	9738.5	9711.4	27.1	.....	275.	301.6	.....	26.6
2	9463.5	9409.8	53.7	.....	288.2	314.6	.....	26.4
3	9175.3	9095.2	80.1	.....	302.7	327.8	.....	25.1
4	8872.6	8767.4	105.2	.....	317.4	340.7	.....	23.3
	47249.9	46983.8	266.1	.....	1444.8	1573.3	.....	128.5
65	8555.2	8426.7	128.5	.....	332.8	353.6	.....	20.8
6	8222.4	8073.1	149.3	.....	347.6	365.8	.....	18.2
7	7874.8	7707.3	167.5	.....	362.7	377.7	.....	15.
8	7512.1	7329.6	182.5	.....	377.7	388.3	.....	10.6
9	7134.4	6941.3	193.1	.....	391.6	398.1	.....	6.5
	39298.9	38478.	820.9	.....	1812.4	1883.5	.....	71.1
70	6742.8	6543.2	199.6	.....	404.7	406.1	.....	1.4
1	6338.1	6137.1	201.	.....	416.4	412.7	3.7	.....
2	5921.7	5724.4	197.3	.....	425.8	416.8	9.	.....
3	5495.9	5307.6	188.3	.....	433.1	418.8	14.3	.....
4	5062.8	4888.8	174.	.....	437.6	418.	19.6	.....
	29561.3	28601.1	960.2	.....	2117.6	2072.4	46.6	1.4
75	4625.2	4470.8	154.4	.....	438.5	414.1	24.4	.....
6	4186.7	4056.7	130.	.....	435.4	407.4	28.	.....
7	3751.3	3649.3	102.	.....	428.3	397.2	31.1	.....
8	3323.0	3252.1	70.9	.....	416.2	383.5	32.7	.....
9	2906.8	2868.6	38.2	.....	399.5	366.7	32.8	.....
	18793.	18297.5	495.5	.....	2117.9	1968.9	149.	.....
80	2507.3	2501.9	5.4	.....	378.2	346.3	31.9	.....
1	2129.1	2155.6	.....	26.5	352.1	323.4	28.7	.....
2	1777.0	1832.2	.....	55.2	322.3	297.5	24.8	.....
3	1454.7	1534.7	.....	80.	289.	269.7	19.3	.....
4	1165.7	1265.	.....	99.3	253.44	240.6	12.84	.....
	9033.8	9289.4	5.4	261.	1595.04	1477.5	117.54	.....
85	912.26	1024.4	.....	112.14	217.08	210.67	6.41	.....
6	695.18	813.73	.....	118.55	180.76	180.76	.....	.....
7	514.42	632.97	.....	118.55	145.99	151.92	.....	5.93
8	368.43	481.05	.....	112.62	113.99	124.53	.....	10.54
9	254.44	356.52	.....	102.08	85.62	99.4	.....	13.78
	2744.73	3308.67	.....	563.94	743.44	767.28	6.41	30.25
90	168.82	257.12	.....	88.3	61.75	77.33	.....	15.58
1	107.07	179.79	.....	72.72	42.378	58.	.....	15.622
2	64.692	121.79	.....	57.098	27.676	42.366	.....	14.69
3	37.016	79.424	.....	42.408	17.124	29.483	.....	12.359
4	19.892	49.941	.....	30.049	9.859	19.976	.....	10.117
	397.49	688.065	.....	290.575	158.787	227.155	.....	68.368
95	10.033	29.965	.....	19.932	5.3628	12.727	.....	7.3642
6	4.6702	17.238	.....	12.5678	2.7675	7.8941	.....	5.1266
7	1.9027	9.3439	.....	7.4412	1.21081	9.3439	.....	8.13309
8	.69189	.....	.69189	.....	.51892	.....	.51892	.....
9	.17297	.....	.17297	.....	.17297	.....	.17297	.....
	17.47076	56.5469	.86486	39.941	10.033	29.965	.69189	20.62389

ENTRY AGE, 65.

Age.	No. of Survivors.		"American" Survivors.		Deaths.		Deaths of "American."	
	"American."	O^M.	Greater.	Less.	"American."	O^M.	Greater.	Less.
65	10000.	10000.	.....	.....	389.	419.7	.....	30.7
6	9611.	9580.3	30.7	.....	406.3	434.1	.....	27.8
7	9204.7	9146.2	58.5	.....	424.	448.2	.....	24.2
8	8780.7	8698.	82.7	.....	441.4	460.8	.....	19.4
9	8339.3	8237.2	102.1	.....	457.8	472.4	.....	14.6
	45935.7	45661.7	274.	.....	2118.5	2235.2	.....	116.7
70	7881.5	7764.8	116.7	.....	473.	482.	.....	9.
1	7408.5	7282.8	125.7	.....	486.7	489.7	.....	3.
2	6921.8	6793.1	128.7	.....	497.7	494.6	3.1	.....
3	6424.1	6298.5	125.6	.....	506.3	497.	9.3	.....
4	5917.8	5801.5	116.3	.....	511.5	496.	15.5	.....
	34553.7	33940.7	613.	.....	2475.2	2459.3	27.9	12.
75	5406.3	5305.5	100.8	.....	512.6	491.5	21.1	.....
6	4893.7	4814.	79.7	.....	508.9	483.4	25.5	.....
7	4384.8	4330.6	54.2	.....	500.6	471.3	29.3	.....
8	3884.2	3859.3	24.9	.....	486.5	455.1	31.4	.....
9	3397.7	3404.2	.....	6.5	467.	435.2	31.8	.....
	21966.7	21713.6	259.6	6.5	2475.6	2336.5	139.1	.....
80	2930.7	2969.	.....	38.3	442.	411.	31.	.....
1	2488.7	2558.	.....	69.3	411.6	383.7	27.9	.....
2	2077.1	2174.3	.....	97.2	376.7	353.1	23.6	.....
3	1700.4	1821.2	.....	120.8	337.9	320.1	17.8	.....
4	1362.5	1501.1	.....	138.6	296.2	285.4	10.8	.....
	10559.4	11023.6	.....	464.2	1864.4	1753.3	111.1	.....
85	1066.3	1215.7	.....	149.4	253.71	250.05	3.66	.....
6	812.59	965.65	.....	153.06	211.29	214.51	.....	3.22
7	601.30	751.14	.....	149.84	170.64	180.28	.....	9.64
8	430.66	570.86	.....	140.2	133.25	147.78	.....	14.53
9	297.41	423.08	.....	125.67	100.08	117.96	.....	17.88
	3208.26	3926.43	.....	718.17	868.97	910.58	3.66	45.27
90	197.33	305.12	.....	107.79	72.18	91.77	.....	19.59
1	125.15	213.35	.....	88.2	49.533	68.82	.....	19.287
2	75.617	144.53	.....	68.913	32.35	50.278	.....	17.928
3	43.267	94.252	.....	50.985	20.016	34.987	.....	14.971
4	23.251	59.265	.....	36.014	11.524	23.706	.....	12.182
	464.615	816.517	.....	351.902	185.603	269.561	.....	83.958
95	11.727	35.559	.....	23.832	6.268	15.103	.....	8.835
6	5.4590	20.456	.....	14.997	3.235	9.368	.....	6.133
7	2.2240	11.088	.....	8.864	1.41526	11.088	.....	9.67274
8	.80874	.....	.80874	.....	.60655	.....	.60655	.....
9	.20219	.....	.20219	.....	.20219	.....	.20219	.....
	20.42093	67.103	1.01093	47.693	11.727	35.559	.80874	24.64074

ENTRY AGE, 70.

Age.	No. of Survivors.		"American" Survivors.		Deaths.		Deaths of "American."	
	"American."	O^M.	Greater.	Less.	"American."	O^M.	Greater.	Less.
70	10000.	10000.	.....	.....	600.2	620.7	.....	20.5
1	9399.8	9379.3	20.5	.....	617.5	630.7	.....	13.2
2	8782.3	8748.6	33.7	.....	631.5	636.9	.....	5.4
3	8150.8	8111.7	39.1	.....	642.4	640.2	2.2	.....
4	7508.4	7471.5	36.9	.....	648.9	638.7	10.2	.....
	43841.3	43711.1	130.2	.....	3140.5	3167.2	12.4	39.1
75	6859.5	6832.8	26.7	.....	650.4	633.	17.4	.....
6	6209.1	6199.8	9.3	.....	645.7	624.6	21.1	.....
7	5563.4	5575.2	.....	11.8	635.2	604.9	30.3	.....
8	4928.2	4970.3	.....	42.1	617.2	586.2	31.	.....
9	4311.	4384.1	.....	73.1	592.6	560.4	32.2	.....
	27871.2	27962.2	36.	127.	3141.1	3009.1	132.	.....
80	3718.4	3823.7	.....	105.3	560.8	529.3	31.5	.....
1	3157.6	3294.4	.....	136.8	522.2	494.2	28.	.....
2	2635.4	2800.2	.....	164.8	478.	454.8	23.2	.....
3	2157.4	2345.4	.....	188.	428.6	412.1	16.5	.....
4	1728.8	1933.3	.....	204.5	375.9	367.6	8.3	.....
	13397.6	14197.	.....	799.4	2365.5	2258.	107.5	.....
85	1352.9	1565.7	.....	212.8	321.9	322.1	.....	.2
6	1031.	1243.6	.....	212.6	268.08	276.24	.....	8.16
7	762.92	967.36	.....	204.44	216.51	232.17	.....	15.66
8	546.41	735.19	.....	188.78	169.06	190.32	.....	21.26
9	377.35	544.87	.....	167.52	126.98	151.92	.....	24.94
	4070.58	5056.72	.....	986.14	1102.53	1172.75	.....	70.22
90	250.37	392.95	.....	142.58	91.58	118.18	.....	26.6
1	158.79	274.77	.....	115.98	62.848	88.63	.....	25.782
2	95.942	186.14	.....	90.198	41.045	64.76	.....	23.715
3	54.897	121.38	.....	66.483	25.396	45.054	.....	19.658
4	29.501	76.326	.....	46.825	14.622	29.464	.....	14.842
	589.5	1051.566	.....	462.066	235.491	346.088	.....	110.597
95	14.879	46.862	.....	31.983	7.9527	20.517	.....	12.5643
6	6.9263	26.345	.....	19.4187	4.1045	12.065	.....	7.9605
7	2.8218	14.280	.....	11.4582	1.7957	14.280	.....	12.4843
8	1.0261	.....	1.0261	.....	.76957	.....	.7657	.....
9	.25653	.....	.25653	.....	.25653	.....	.25653	.....
	25.9073	87.487	1.28263	62.8599	14.879	46.862	1.0261	33.0091

ENTRY AGE, 75.

Age.	No. of Survivors.		"American" Survivors.		Deaths.		Deaths of "American."	
	"American."	Om.	Greater.	Less.	"American."	Om.	Greater.	Less.
75	10000.	10000.	.....	.....	948.1	926.4	21.7	.....
6	9051.9	9073.6	.....	21.7	941.4	911.2	30.2	.....
7	8110.5	8162.4	.....	51.9	925.9	888.3	37.6	.....
8	7184.6	7274.1	.....	89.5	899.8	857.9	41.9	.....
9	6284.8	6416.2	.....	131.4	863.9	820.2	43.7	.....
	40631.8	40926.3	.....	294.5	4579.1	4404.	175.1	.....
80	5420.9	5596.	.....	175.1	817.6	774.6	43.	.....
1	4603.3	4821.4	.....	218.1	761.4	723.2	38.2	.....
2	3841.9	4098.2	.....	256.3	696.7	665.6	31.1	.....
3	3145.2	3432.6	.....	287.4	624.9	603.2	21.7	.....
4	2520.3	2829.4	.....	309.1	547.9	538.	9.9	.....
	19531.6	20777.6	.....	1246.	3448.5	3304.6	143.9	.....
85	1972.4	2291.4	.....	319.	469.4	471.3	.....	1.9
6	1503.	1820.1	.....	317.1	390.8	404.3	.....	13.5
7	1112.2	1415.8	.....	303.6	315.62	339.8	.....	24.18
8	796.58	1076.	.....	279.42	246.46	278.57	.....	32.11
9	550.12	797.43	.....	247.31	185.11	222.33	.....	37.22
	5934.3	7400.73	.....	1466.43	1607.39	1716.3	.....	108.91
90	365.01	575.1	.....	210.09	133.52	172.97	.....	39.45
1	231.49	402.13	.....	170.64	91.62	129.72	.....	38.1
2	139.87	272.41	.....	132.54	59.839	94.76	.....	34.921
3	80.031	177.65	.....	97.619	37.023	65.95	.....	28.907
4	43.008	111.7	.....	68.692	21.317	44.678	.....	23.361
	859.409	1538.99	.....	679.581	343.319	508.078	.....	164.759
95	21.691	67.022	.....	45.331	11.594	28.466	.....	16.872
6	10.097	38.556	.....	28.459	5.9832	17.656	.....	11.672
7	4.1138	20.9	.....	16.7862	2.6179	20.9	.....	18.282
8	1.4959	.....	1.4959	.....	1.12192	.....	1.12192	.....
9	.37398	.....	.37398	.....	.37398	.....	.37398	.....
	37.77168	126.478	1.86988	90.5762	21.691	67.022	1.4959	46.826

ENTRY AGE, 80.

No. of Survivors.		"American" Survivors.		Deaths.		Deaths of "American."	
"American."	O^M.	Greater.	Less.	"American."	O^M.	Greater.	Less.
10000.	10000.	.....	.....	1508.2	1384.3	123.9	.....
8491.8	8615.7	.....	123.9	1404.5	1292.3	112.2	.....
7087.3	7323.4	.....	236.1	1285.3	1189.5	95.8	.....
5802.	6133.9	.....	331.9	1152.8	1077.9	74.9	.....
4649.2	5056.	.....	406.8	1010.7	960.3	50.4	.....
36030.3	37129.	.....	1098.7	6361.5	5904.3	457.2	.....
3638.5	4095.7	.....	457.2	865.8	843.3	22.5	.....
2772.7	3252.4	.....	479.7	721.	722.5	.....	1.5
2051.7	2529.9	.....	478.2	582.2	607.2	.....	25.
1469.5	1922.7	.....	453.2	454.7	497.7	.....	43.
1014.8	1425.	.....	410.2	341.47	397.3	.....	55.83
10947.2	13225.7	.....	2278.5	2965.17	3068.	22.5	125.33
673.33	1027.7	.....	354.37	246.29	309.1	.....	62.81
427.04	718.6	.....	291.56	169.02	231.8	.....	62.78
258.02	486.8	.....	228.78	110.38	169.35	.....	58.97
147.64	317.45	.....	169.81	68.302	117.84	.....	49.538
79.338	199.61	.....	120.272	39.324	79.84	.....	40.516
1585.368	2750.16	.....	1164.792	633.316	907.93	.....	274.614
40.014	119.77	.....	79.756	21.387	50.871	.....	29.484
18.627	68.899	.....	50.272	11.0383	31.552	.....	20.5137
7.5887	37.347	.....	29.7583	4.8291	37.347	.....	32.5179
2.7596	.....	2.7596	.....	2.06971	.....	2.06971	.....
.68989	.....	.68989	.....	.68989	.....	.68989	.....
69.67919	226.016	3.44949	159.7863	40.014	119.77	2.7596	82.5156

ENTRY AGE, 85.

Age.	No. of Survivors.		"American" Survivors.		Deaths.		Deaths of "American."	
	"American."	Om.	Greater.	Less.	"American."	Om.	Greater.	Less.
85	10000.	10000.	.....	.....	2379.6	2056.9	222.7	.....
6	7620.4	7943.1	.....	322.7	1981.4	1764.5	216.9	.....
7	5639.	6178.6	.....	539.6	1600.3	1482.9	117.4	.....
8	4038.7	4695.7	.....	657.	1249.6	1215.6	34.	.....
9	2789.1	3480.1	.....	691.	938.5	970.3	.....	31.8
	30087.2	32297.5	.....	2210.3	8149.4	7490.2	691.	31.8
90	1850.6	2509.8	.....	659.2	676.9	754.8	.....	77.9
1	1173.7	1755.	.....	581.3	464.56	566.1	.....	101.54
2	709.14	1188.9	.....	479.76	303.38	413.62	.....	110.24
3	405.76	775.28	.....	369.52	187.71	287.79	.....	100.08
4	218.05	487.49	.....	269.44	108.08	194.99	.....	86.91
	4357.25	6716.47	.....	2359.22	1740.63	2217.3	.....	476.67
95	109.97	292.5	.....	182.53	58.776	124.24	.....	65.464
6	51.194	168.26	.....	117.066	30.337	77.051	.....	46.714
7	20.857	91.209	.....	70.352	13.2726	91.209	.....	77.9364
8	7.5844	.....	7.5844	.....	5.6883	.....	5.6883	.....
9	1.8961	.....	1.8961	.....	1.8961	.....	1.8961	.....
	191.5015	551.969	9.4805	369.948	109.97	292.5	7.5844	190.1144

ENTRY AGE, 90.

Age.	No. of Survivors.		"American" Survivors.		Deaths.		Deaths of "American."	
	"American."	Om.	Greater	Less.	"American."	Om.	Greater.	Less.
90	10000.	10000.	.....	.....	3657.8	3007.5	650.3	.....
1	6342.2	6992.5	.....	650.3	2510.2	2255.6	254.6	.....
2	3832.	4736.9	.....	904.9	1639.4	1575.9	63.5	.....
3	2192.6	3161.	.....	968.4	1014.3	1218.6	.....	204.3
4	1178.3	1942.4	.....	764.1	584.04	777.	.....	192.96
	23545.1	26832.8	.....	3287.7	9405.74	8834.6	968.4	397.26
95	594.26	1165.4	.....	571.14	317.62	494.98	.....	177.36
6	276.64	670.42	.....	393.78	163.94	307.01	.....	143.07
7	112.7	363.41	.....	250.71	71.716	363.41	.....	291.694
8	40.984	.....	40.984	.....	30.738	.....	30.738	.....
9	10.246	.....	10.246	.....	10.246	.....	10.246	.....
	1034.83	2199.23	51.23	1215.63	594.26	1165.4	40.984	612.124

RÉSUMÉ.

COMPARAISON DE LA TABLE DE MORTALITÉ O^M AVEC LA TABLE AMÉRICAINE REVISEÉ.

PAR RALPH P. HARDY.

1. Une comparaison détaillée de la fréquence de décès selon la Table O^m et la Table Américaine (Table de Monsieur Hunter à la Makeham).

La comparaison est faite par la soumission de cent mille vivants d'un certain âge à chaque table et le compte des morts et des survivants dans une époque fixe. Cette comparaison a été commencée de vingt, et complétée de lustre à lustre.

2. Une investigation de l'effet sur le profit du fait que la Compagnie d'Assurance sur la vie suppute la quantité des morts (la mortalité) selon la Table O^m, et calcule en même temps les primes et les contributions aux fonds de réserve selon la Table Américaine. Voilà ce que ces Tables montrent à l'égard des Assurances sur la vie et de celles pour douer, pour des périodes de quinze, vingt, et vingt-cinq années:

1. Le profit brut de chaque lustre.
2. Une analyse de ces profits, qui montre
   a. leur composition, c'est à dire
      1) exemption des reclamations;
      2) payement des primes additionnelles;
   b. leur absorption par les contributions plus grandes aux fonds de réserve qui sont causées par le plus grand nombre des survivants.

Enfin il est dé montré que c'est un effet de meilleure mortalité, qu'il y a une diminution graduelle des profits; et ce fait est recommandé à l'attention spéciale des Compagnies qui émettent de brèves polices pour douer.

KURZE NOTIZ.

EINE VERGLEICHUNG DER O^M STERBLICHKEITS-TABELLE MIT DER ANGEPASSTEN AMERIKANISCHEN TABELLE.

VON RALPH P. HARDY.

1. Ein genauer Vergleich der Häufigkeit der Sterbefälle nach der O^m Tabelle und nach der amerikanischen Tabelle (Hunter's Tabelle nach Makeham's Methode).

Die Vergleichung geschieht in der Weise, dass 100,000 Personen gewisser Altersstufen unter jede der Tabellen subsummiert, und dann die bis zur nächsten Altersstufe Gestorbenen resp. Ueberlebenden gezählt werden. Man hat hier mit dem zwanzigsten Lebensjahre begonnen und die Vergleiche für Altersstufen von fünf zu fünf Jahren gemacht.

2. Eine Untersuchung des finanziellen Einflusses des Umstandes auf den Reingewinn einer Lebensversicherungsanstalt, dass für sie die Sterblichkeitsrate der O^m-Tabelle massgebend ist, während die Prämien und Zuwendungen zum Reservefonds auf der amerikanischen Tabelle basieren. Für Versicherungen auf den Todesfall und für Aussteuerversicherungen mit 15-, 20- und 25jähriger Versicherungsdauer ergeben die Tabellen:

1. Den Bruttogewinn nach je fünf Jahren.
2. Eine Zergliederung des Gewinnes
   a. nach seiner Quelle, und zwar
      aa. durch Verfall von Ansprüchen;
      bb. durch Zuschlagsprämien;
   b. nach seiner Absorbierung infolge nötig werdender höherer Reserven für die grössere Anzahl der Ueberlebenden.

Endlich wird gezeigt, dass *eine* Folge geringerer Sterblichkeit eine successive Gewinnabnahme ist, und besonderes Gewicht wird auf diesen Punkt in Fällen kurzfristiger Aussteuerversicherungen gelegt.

BRIEF NOTES ON THE BRITISH OFFICES' MORTALITY EXPERIENCE, 1863–1893.

By George King, F.I.A., F.F.A.,

One of the Vice-Presidents of the Institute of Actuaries.

It is not intended in these brief notes to enter into any elaborate analysis of the new British Offices' Experience. That would be too large a task to be attempted with the time at my disposal. The object is to place before the members of the Congress a succinct statement of the extent of the experience, with a few explanations as to its nature, and the principles adopted in compiling it; and to discuss and illustrate very briefly some of its more important characteristics.

About the year 1893 it came to be felt that the Institute of Actuaries' Experience was passing out of date. It had been drawn from the records of twenty Companies, and covered the whole of their history. Therefore many of the lives had come under observation in the early years of the nineteenth century, when social and sanitary conditions existed different from those of the present time. Companies in their valuation reports had often mentioned the results of their individual mortality experience investigations, and it was found that they almost invariably announced mortality falling below that to be expected by the Institute Tables; and hence the conclusion was almost inevitable that the mortality prevailing amongst assured lives at the present day is less than was the case in former times.

In order to compile the experience Committees were formed respectively by the Institute and the Faculty of Actuaries, which, combined, acted together as a Joint Committee. A large amount of the work was carried on by correspondence, but periodical meetings of the Joint Committee were held in London which the Scottish Section attended, and at these meetings all important questions were decided. After very careful consideration it was resolved to limit the experience to the thirty years from 1863 to 1893, and to leave out of account all the experience of the earlier days of the Companies. In this way it was thought that the rate of mortality prevailing at the present day could be ascertained, and that it would form a much surer basis for actuarial calculations than if it were blended with the experience of former years.

To the Life Assurance Section sixty Companies contributed; while to the Annuity Section there were forty-two contributors, including three American Offices, which sent in their returns for business transacted only in the United Kingdom.

The Companies were asked to write cards for policies on British lives only, that is, on lives resident in the United Kingdom when the contracts were entered into; and to exclude all cases where extra premiums were charged at the outset for inferiority of life, or for foreign travel, or for occupation. Thus in the experience are included only healthy British lives, assured at ordinary rates; although, to a small extent, this principle was departed from, because no account was taken of extra premiums imposed subsequent to the dates of the contracts. Therefore a number, very small proportionately, of lives exposed to special risks were not eliminated. A careful estimate was made, and it was concluded that

only in comparatively few cases were extra risks incurred at a time subsequent to the issue of the policy, and it was found that it would be very difficult to trace these policies and make the corrections for them, and that to do so would add greatly to the time occupied in conducting the enquiry, and to its cost.

The British Offices' Experience differs in many important respects from those that have gone before it. In the first place, because it is limited to thirty years, a large number of contracts, already in existence at the commencement of the observations, were brought in, the experience of the early years of these contracts being excluded. In the published volumes these contracts are styled "Old Assurances" or "Old Annuities" respectively, and the appended tables show that they constitute a very important portion of the total data. Next, the Experience was extracted according to *policy years*, and not calendar years, each policy coming under observation, or passing out of observation, in 1893, at an anniversary of its date. Thus, the Experience did not commence at a fixed moment of time, but those policies in existence in 1863 were brought into account on the anniversaries of their issue, namely, at all moments of time in year 1863; and similarly those existing in 1893 were struck out of observation at their anniversaries in 1893 and not in bulk at the close of that year. By this arrangement it has been rendered possible for the first time to get select tables based on accurate data, no assumptions having been made as to dates of entry or dates of exit. As to withdrawals, the method called "Nearest Duration" was followed, but with allowance for the days of grace, so that a very close approximation to the exact period of duration was arrived at. An investigation was made to see how far this method differed in its results from the "Exact Duration Method," and it was found that the difference was totally inappreciable. In the Life Assurance Section the mortality was taken out according to certain classes of policies. In the first place, in all the main classes, the policies issued without participation in profits were carefully separated from those participating, and they have been kept apart in all the derived tables. Also male and female lives were distinguished throughout, although in the case of some of the smaller classes the number of lives assured was too small to give results of any great use. The Ordinary Whole Life Policies constituted the main bulk of the data, but the following other classes were dealt with separately, namely, Whole Life Policies by Single Premiums or Premiums limited in number, Whole Life Policies at increasing Premiums, Endowment Assurances, Temporary Assurances, Contingent Assurances, and Assurances on Joint Lives. In the case of Annuities, while males and females have been carefully distinguished, there are no sub-classes, only annuities which were immediate at the time of grant being brought into account.

Throughout the whole of the enquiry the influence of selection was kept carefully in view, and while Aggregate Tables have been prepared —that is, tables including in one item all lives who passed through any particular year of age without reference to the duration of the policies— yet full Select Tables have also been calculated and published, tracing throughout life, for all the main policy sections, those policies effected on lives of the same age at entry; while, in the whole life class, numerous Truncated Tables are given—that is, Tables aggregate in character, but omitting the earlier years of exposure. Thus, for the Ordinary Whole Life males experience there are six Truncated Tables, excluding respectively 5, 6, 7, etc., up to 10 years of exposure. This very labourious course was followed in order to supply material for forming workable Select Tables later on, because at the beginning it was not certain at what period of assurance it would be found possible to merge the Select Tables into the Aggregate. Seeing that the whole of these investigations have

been published in detail there is supplied to Actuaries throughout the world material of the amplest dimensions for pursuing further enquiry.

The British Offices' Experience is one of lives, and not of policies; that is, all duplicate policies have been eliminated; but in this connection a special point has to be mentioned. In the case of the Aggregate Tables, and these include the Truncated, all duplicate policies on the same life, no matter what may have been the date of their issue, were thrown out, and only one life was taken to be at risk, the term of risk being from the date of the first assurance until the last assurance ran off, provided that the policies at any time of their history were concurrent. If, however, there had been any interval between the withdrawal of one policy and the issue of another, no policy on the same life being in force during that interval, the first policy was treated as a withdrawal and the second policy was treated as a fresh entrant. In the case of the Select Tables, however, only simultaneous policies were eliminated, by simultaneous being meant policies issued at the same date. If the same life took out a number of policies at different dates, all these policies were included in the Select Tables, each successive policy coming into the particular section of the Table belonging to the age of the life at the time that policy was issued. Thus the Aggregate Tables are not the sum of the Select Tables, because of the difference in the method of treating duplicates. To take an example, in Tables Nos. 1 and 2 are given summaries of the data relating to Whole Life Policies issued on male lives, Table No. 1 including the policies with participation and Table No. 2 those without participation. In the first section of each table the data relating to the Select Experience appear, and in the second section the data relating to the Full Aggregate Experience; and it will be seen that the total of the Select Experience considerably exceeds that of the Full Aggregate Experience. At the foot of each of these tables is appended statements showing the difference between the Select and Full Aggregate Experiences, and it will be observed that the years of risk in the Aggregate section are less by 18.39 per cent. than those in the Select section in the case of policies with participation, and by 8.57 per cent. in the case of policies without participation. These differences represent the duplicate policies which were not simultaneous.

In each of the Tables Nos. 1 and 2 there are also given the Aggregate data, excluding the first five and the first ten years of experience, respectively, and these afford some interesting information. Looking at the Old Assurances with participation, it will be seen that in the Full Aggregate Experience there were 2,654,243 years of risk, and in the Aggregate Experience, excluding the first five years, there were 2,555,768 years of risk, so that the years of risk during the first five years amounted to 98,475 only. It thus appears that among the Old Assurances there were comparatively very few recent policies. Looking again at the Experience excluding the first ten years, it will be found that in the Old Assurance the years of risk during the first ten years were only 376,329. Seeing then that the Old Assurances form a very important part of the total observations, it is evident that the O^M Table, which includes the Full Aggregate Experience, partakes very much of the nature of a Truncated Table. There is therefore not so much difference between the O^M and the O^{M5} Tables as between the H^M and the H^{M5}. This is a point well worthy of attention.

As regards the New Assurances, the circumstances are different. With them, the great bulk of the observations relate to very recent policies, which is natural, seeing that the New Assurances include only policies issued within the thirty years, and that the business of the contributing Companies had been rapidly increasing, so that the policies issued towards the end of the thirty years greatly outnumbered those

issued towards the beginning. An Aggregate Table formed from the New Assurances alone would not be of much value, and an examination of this portion of the data will exemplify the fact that many of the Aggregate Tables in existence have the same defect. For instance, the American Experience was based upon the facts collected from an Office which at that time had not been very long established, and the average duration of the policies included was therefore short. Such a table, though admissible when nothing better can be had, must always be used with caution, and should be superseded whenever more extensive data become available.

In Table No. 3 is given an analysis of the age distribution of the assured lives. It shows the actual distribution and the proportionate distribution of the years of risk, for the British Offices' Experience with participation and without participation, respectively, and gives the same information for the Institute of Actuaries' Healthy Males Experience, so that a comparison may be made. It will be seen that in the British Offices' Experience, without participation, the average age is higher than in the Experience with participation, while in both the average age is much higher than in the Institute Experience. This is a most important and useful fact, because for the first time we have an adequate experience of lives advanced in age, and the resulting mortality tables carried on to the end of life are therefore entitled to the greatest confidence.

Tables Nos. 4, 5 and 6 give the same information for female lives as is given in Tables Nos. 1, 2 and 3 for male lives, and very similar remarks apply.

Table No. 7 contains a summary of the data relating to Endowment Assurances. The experience of Endowment Assurances taken by themselves is now given for the first time, and an examination of it will prove interesting. Nevertheless this experience is not of much practical value for two reasons. In the first place the average duration of the policies is exceedingly short. Only of late years has great development taken place in the United Kingdom in Endowment Assurance business. In former days the business was very restricted, as shown by the small number of policies and the few years of risk under the heading Old Assurances. Now, a very large, almost a preponderating, proportion of the business of the British Companies is transacted on the Endowment Assurance plan, but there has not yet been time for useful experience to accumulate. In the second place, in former days those who effected Endowment Assurances were what may be called a select class. Persons who felt that their own prospects of longevity were good took out Endowment Assurance policies, and therefore the lives under this plan were well above the average. Now that the custom of taking out such policies has become so general, there is not the same self-selection, and we may therefore expect that the rate of mortality among Endowment Assurance policy-holders will be greater in the future than it has been. For these two reasons the very light mortality which during the thirty years 1863 to 1893 was found to prevail in the Endowment Assurance section must not be assumed to be a permanent feature of this class of business, and it would not be wise to use without careful consideration the British Offices' Endowment Assurance Experience for calculating premiums or for estimating policy reserves.

Table No. 8 contains a summary of the data relating to all the minor classes of assurance of which particulars were obtained from the Companies, but the extent is too small to render satisfactory monetary calculations based thereon. The experience will, however, be of value as affording indications of the direction taken by the rate of mortality in the special classes, so that adjustments may be applied to other tables

when calculating rates of premium for, say, Temporary or Contingent Assurances.

I may here mention that Tables Nos. 1 to 8 have been for the most part extracted bodily from the volumes published by the Joint Committee. In some cases, however, they have been somewhat abridged and in other cases extended. The thanks of the Congress are due to the Joint Committee for permitting use to be made of this material.

It will now be convenient to consider in a little more detail the characteristics of the experience based upon Ordinary Whole Life Participating Policies.

Table No. 9 has been prepared with the view, amongst other things, of ascertaining the Expectation of Duration of policies, that is, the average duration of policies, each of which is followed on until it either lapses, or is surrendered, or becomes a claim.

The table was formed from the Select data, central ages at entry 20, 25, 30, 35, etc., being taken. Use was made of the records both of the Old and the New Assurances for each central age at entry, the experience of that age itself and of the two ages on each side of it, five ages in all, being taken into account. The probability of the persistence of a policy was computed for each year, from the moment of entering, throughout subsequent life; and for the radix of each of the ten columns there was taken the total number of New Assurances which entered at the five ages represented by the column. The table is, in fact, a Select Mortality Table for policies as distinguished from lives, the rate of discontinuance being included with the rate of mortality. The Table is styled "Model Office," because it represents the number of policies existing at the end of each year of duration in a hypothetical Company doing exactly the same amount of new business each year, the policies being issued at the various ages in the same proportions, and going off the books at the same rates, as in the British Offices' Experience. A Model Office of this kind serves various useful purposes. Among others, it enables us to ascertain the Expectations of Duration of policies as distinct from the Expectations of Life of persons. Table No. 10, derived from Table No. 9 and from a similar table prepared many years ago from the Institute Experience, is to the point and is interesting. It will be seen, taking the O^M experience, that at age at entry 20 the average duration of policies followed on to their termination is 24.039 years, for age 25, 24.663 years, and so on. Policies, therefore, remain in force on the average very much longer periods than many people suppose, and this fact destroys to a large extent the basis upon which Assessment Assurance is built. The advocates of that system of assurance are never tired of saying that policies remain on the books of Companies for a very short time. They quote the Institute Experience, and point out that the average duration of the policies of the Twenty Offices was only a little over 9 years, but they omit to say that a large proportion of the business of the Twenty Offices was still in existence at the close of the observations, and they therefore fail to take account of a very large proportion of the real durations of the policies. The Expectations of Duration of policies according to the Institute Experience falls only a little short of that according to the British Offices' Experience.

Mr. H. W. Manly has pointed out that, just as in the case of infants where the Expectation of Life increases for a period with the age, so in the case of policies, the Expectation of Duration increases at the beginning with the length of time the policies have been on the books. The heavy rate of lapse during the first few policy years reduces the Expectations of the policies for a time. The figures in Table No. 11 illustrate this fact, and still further destroy the basis of Assessment Assurance. They show the Curtate Expectations of Duration of policies

at representative ages at entry after these policies have been on the books for periods up to ten years. It will be seen that even after ten years of duration policies on the average have still many years to run. I have dwelt a little on this question because of its important bearing upon Assessment Assurance.

It is desirable to form a general idea of the rates of mortality displayed by the new experience and to compare these rates with those of other well-known standard tables. The actual rates of mortality, q_x, might be tabulated, but that function by itself would be confusing. It does not give a sufficiently broad view, and from it but little real insight can be obtained. I have preferred to adopt the plan proposed first, I believe, by Mr. R. P. Hardy, and to show out of 10,000 entrants at representative ages how many survive to the end of successive quinquennial terms. In Table No. 12 these figures are given for ages at entry 20, 25, 30, etc., up to 70. The figures really are the probability of living 5, 10, 15, etc , years for each age at entry, and, by setting the columns for the various mortality tables beside each other, the progress of the mortality may be easily and rapidly compared. Table No. 12 includes the American Experience as well as the H^M Aggregate, the H^M Select, and the H^{M5}; and these are compared with the O^M Aggregate, the O^M Select, and the O^{M5}, and also with tables deduced from the non-participating policies of the British Offices, both Aggregate and Select. As an example of the use of this Table, taking age at entry 30, and comparing the O^M Aggregate Table with the American Experience, we find that the probability of living ten years is .9296 by the former and .9141 by the latter. Therefore, between ages of 30 and 40 the rate of mortality by the O^M Table is lighter than that by the American. If, however, we look at age at entry 60 we find that by the O^M Table the probability of living ten years is .6543, and by the American Table .6659. Therefore between the ages 60 and 70 the mortality by the O^M Table is heavier than by the American. An infinite variety of comparisons of this kind could be made, but it is not necessary to elaborate the matter further here. The Table speaks for itself.

For Table No. 12 Sprague's Select Tables were used for the Institute Experience. These were formed by their author by taking the Select rates of mortality for about the first five years of assurance, and thereafter joining them to the H^{M5} rates. As regards the British Offices' Experience, the Select rates are retained for the first ten years of assurance, and thereafter joined on to the ultimate rates, namely, O^{M10}. I have to thank Mr. Ackland for an early proof of this Select Table, not yet published, which has enabled me to complete Table No. 12.

In Table No. 13 are given the rates of premium at $3\frac{1}{2}$ per cent. interest by the British Offices' Tables, and by the Healthy Males' Table of the Institute of Actuaries, ages 22, 27, 32, etc., being taken, because these are the ages chosen by Mr. Chatham as illustrations, and I have had recourse to his paper for the British Offices' Select Rates. It will be noticed that the Aggregate Table of the British Offices, O^M, gives, throughout, considerably lower rates than the H^M, and this was to have been expected from the characteristics of the Table and from the lower mortality it discloses. The Select Values of the British Offices are those prepared by Mr. Chatham, and are not based on the official graduation, which has not yet been published, but no doubt they will be found very near the mark. The Select H^M rates have been taken from Sprague's Select tables. It becomes at once apparent that the opinion already held is well founded, that an Aggregate Table is not suitable for the calculation of premium rates, as it understates the premiums at the younger ages and overstates them at the older. This deviation is no mere accident, but arises from the very principles of the Table. The new en-

trants coming into an Aggregate Table in middle life immediately after medical examination depress the rate of mortality and the rate of premium for those who entered earlier, while the survivors of the earlier entrants, among whom the effect of selection has worn off, increase the rate of mortality at the older ages, and thus enhance the premium rates. The only satisfactory rates of premium are those derived from Select Tables.

The non-participating rates come out almost throughout high, only at age 67 in the specimen table being lower than the participating rates, and at that age the amount of data is too small in the non-participating Table to make a safe basis for calculation. The Select rates for female lives are also high up to about age 37, but at the older ages they fall short of the rates for male lives, except at the highest ages; but at these high ages the data as regards female lives are insufficient. It should be noted that both for male non-participating policies and for policies on the lives of females the data at the lower and higher ages are meagre, and only at the central ages can they be relied upon.

Table No. 14 gives policy values at 3 per cent. by various tables. Unfortunately the O^M Select Tables are not yet available. Some enquirers may be interested in these individual policy values, which, however, do not throw very much light upon the subject, because, comparing one table with another, the values often do not run according to any apparent law, and no general conclusions can be derived from them. They are given here very much as a matter of curiosity.

Table No. 15 is much more useful for comparing generally the policy values by one table with those by another, and it seems to me to be the most useful of the tables accompanying this paper. In Vol. XX. of the Journal of the Institute of Actuaries, page 233, a paper of mine appeared, which was written with the view of ascertaining the effects upon the reserves of life offices of changes in the bases of valuation. From the Twenty Offices' Experience I had prepared a Model Office very similar to that given in Table 9 of the present paper, and that Model Office I had valued by a great many mortality tables and at various rates of interest. To bring that paper up to date, I submitted last December another communication to the Institute of Actuaries, which has been printed in the Journal, Vol. XXXVII, page 453, to which I now refer. For reasons therein given I valued the Model Office based on the Institute Experience, by the new tables, the principal inducement to take that course being that the valuations in the former paper remained available, and, after all, the comparative reserves differed but very little in the two Model Offices. In Table No. 15 I have now repeated the valuations of the old Model Office, by the Seventeen Offices' Table (Actuaries), and by the American Table, as these two tables are still, I believe, much used in the United States, and it may be useful to American Actuaries to see the effects they produce on the valuations of Life Companies. The whole of the valuations in Table No. 15 have, in the column headed "Comparative Reserves," been brought into comparison with O^M valuations at 3 per cent., so that at a glance the relative effects can be ascertained of a valuation on any of the bases included in the Table. The H^M Select valuation is based upon my own Analysed Mortality Tables given in the former paper above referred to, and I have not thought it worth while to recalculate that valuation by Sprague's Tables, as the two methods give results almost identical. It will be noticed that, although on the whole the H^M reserves are smaller than the O^M, yet the H^M Select reserves are the largest of all those included in Table No. 15. Now, it is a very common view among actuaries that a valuation by a Select Table is the best, approximating most nearly to the truth. It appears that such a valuation is the most stringent of all, and I have no doubt

this statement will be confirmed when a valuation by the O^M Select Table becomes possible.* A valuation by the O^M Aggregate Table gives on the whole larger reserves than one by the H^M, while the Seventeen Offices' Table falls below the H^M, and the American Table gives the smallest reserves of all. The fact is well illustrated that a high rate of mortality does not mean high reserves, the reserves being much more affected by the incidence of the rates of mortality in different portions of the Table.

The actual policy reserves are not the only things to be considered in comparing the valuation of a Life Office by one table with that by another, because the question of reversionary bonus is material. Now, although the O^M Table gives on the whole larger policy reserves than the H^M, it makes smaller reserves for the bonuses, and consequently it has been found by actual experience that in the case of an ordinary Life Assurance Company these two tables bring out almost identical liability. In my paper of December above referred to, I go into this matter with some fulness.

Although the O^M Table gives on the whole larger policy reserves than the H^M, yet it does not do so for all ages at entry. In a series of voluminous Tables, Nos. 13 to 18, in my paper of last December, and which it is not necessary to repeat here, I give the reserves of the Model Office for each central age at entry, and show that up to age at entry 40, the O^M Table gives larger reserves than the H^M, but from central ages at entry 45 upwards it gives smaller. It therefore appears that the average age at entry of policy-holders in a Life Office affects the comparative reserves, but, after all, not to a very large extent. In making estimates by the Model Office, however, this point must be borne in mind, and adjustments made in respect of it. In my December paper this point is fully discussed, and the method of making adjustments explained.

The Model Office has been prepared from the Experience of Assured Lives in the United Kingdom, and it supplies a very accurate tool for making close estimates for British Companies, but very likely it would not apply so well to American Companies, or Companies on the Continent of Europe, the conditions being different. The principles of the Table, however, are of universal application, and it would be very useful were some American and Continental Actuaries to make similar investigations with their own mortality experiences, and to give the results to the world. In this way the general fund of actuarial knowledge regarding the properties of mortality tables would be much extended.

Annuity Experience.

In Table No. 16 is given a summary of the data of the British Offices' Annuity Experience, similar to the summaries previously given for the Assurance Experience; and in Table No. 17 the age distribution of the Annuities is set forth, and compared with that of the annuities in the British Government Annuity Experience of 1883. It will be seen that, as in the case of the Assurance Experience, the average age of the annuitants, both male and female, is greater in the British Offices than in the British Government.

The graduation of the British Offices' Annuity Experience proved to be a matter of some difficulty, and two graduations were made, one by the Graphic Method by Mr. Chatham, on principles arranged in consultation with Dr. Sprague, and the other by Mr. G. F. Hardy, who used Makeham's Law. Finally Mr. Hardy's Graduation was adopted, but the graphic graduation, at the request of the Joint Committee, was published by Mr. Chatham in the Journal of the Institute of Actuaries, Vol. XXXVII, page 526. The profession has thus the benefit of both the

graduations, but the number of entrants below age 50 was so small that the Table below that age is not of much value.

Table No. 18 gives a comparison of Annuity values at 3 per cent. interest by the British Offices' Tables and the British Government Tables for both males and females, and for Select Annuities and Ultimate Annuities. The Select Annuities are the values, by Select Tables, of the annuities at the date of purchase, and in each case the Ultimate Annuities are the values by the Aggregate Table five years from the date of purchase. It will be seen that, both as regards male and female lives, the British Offices' values are higher than the British Government, and doubtless this is to a certain extent due to an improvement in the vitality of the population. It is, however, possible that the whole of the difference is not due to this cause, because probably the force of selection is stronger in the Companies than in the Government. Government Annuities are often purchased by trustees under wills, entirely without reference to the health of the nominees, but simply for the purpose of clearing the estates of annuity payments with a view to distribution; and these lives are not so likely to be of the best class as those that apply voluntarily to the Assurance Offices. Nevertheless, no doubt some improvement has taken place in the rate of mortality during recent years. If the figures in Table No. 18 be more minutely examined it will be seen that the improvement in the male mortality below age 70 is greater than in the female, while above age 70 it is less. It is difficult to account for these variations.

In writing this paper I have been very much assisted by the published investigations of Messrs. T. G. Ackland and James Chatham, both of whom have expended a vast amount of labor in analysing the new experience. The name of Mr. Henry Moir, also, must be remembered, his paper on "First Year's Risk" being a valuable one.

In conclusion I may mention the following papers as being of use to those who may wish to pursue the subject further:

The British Offices' Life Table 1863-1893, by Thomas G. Ackland. J.I.A., Vol. XXXVI, Page 133.

The Comparative Reserves of Life Assurance Cos., by G. King. J.I.A., Vol. XXXVII, Page 453.

Temporary Assurances, by W. P. Elderton. J.I.A., Vol. XXXVII, Page 501.

Graduation of the British Offices' Annuity Experience, by the Graphic Method, by James Chatham. J.I.A., Vol. XXXVII, Page 526.

First Year's Risk, by Henry Moir. Transactions of the Faculty of Actuaries. Vol. I, Page 17.

Premiums Deduced from the Mortality Experience of British Life Offices 1863-1893, by James Chatham. Transactions of the Faculty of Actuaries. Vol. I, Page 109.

Policy Values Deduced from the Mortality Experience of British Offices 1863-1893, by James Chatham. Transactions of the Faculty of Actuaries. Vol. I, Page 145.

Mortality amongst Assured Lives, and the Requisite Reserves of Life Offices, by G. King. J.I.A., Vol. XIX, Page 381, and Vol. XX, Page 233.

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* Since this paper was written the volume of Om Select Tables has been published, and the result, added to Table 15, of an Om Select valuation of the Model Office entirely confirm the statement here made.

TABLE NO. 1.

SUMMARY OF DATA.

Whole Life. Male Lives. With Participation.

O^M.

Section of Experience.	Entered.	Existing.	With-drawals.	Died.	Years of Risk.
Select Tables.					
Old Assurances	187,462	46,648	27,913	112,901	3,340,263
New Assurances	485,431	282,073	138,980	64,378	5,306,983
Total	672,893	328,721	166,893	177,279	8,647,246
Full Aggregate Tables.					
Old Assurances	149,566	38,170	24,414	86,982	2,654,243
New Assurances	402,272	224,387	123,978	53,907	4,402,620
Total	551,838	262,557	148,392	140,889	7,056,863
Aggregate Tables, Excluding First Five Years' Experience.					
Old Assurances	145,770	38,170	21,558	86,042	2,555,768
New Assurances	265,570	178,490	44,121	42,959	2,769,094
Total	411,340	216,660	65,679	129,001	5,324,862
Aggregate Tables, Excluding First Ten Years' Experience.					
Old Assurances	137,351	38,170	16,837	82,344	2,277,614
New Assurances	184,284	134,229	19,568	30,487	1,640,424
Total	321,635	172,399	36,405	112,831	3,918,038
Difference Between Select Tables and Full Aggregate Tables.					
Old Assurances	37,896	8,478	3,499	25,919	686,020
New Assurances	83,159	57,686	15,002	10,471	904,363
Total	121,055	66,164	18,501	36,390	1,590,383

TABLE NO. 2.

SUMMARY OF DATA.

WHOLE LIFE. MALE LIVES. WITHOUT PARTICIPATION.

O^{NM}.

Section of Experience.	Entered.	Existing.	Withdrawals.	Died.	Years of Risk.
SELECT TABLES.					
Old Assurances	16,989	2,853	3,021	11,115	255,784
New Assurances	45,197	20,697	17,123	7,377	403,327
Total	62,186	23,550	20,144	18,492	659,111
FULL AGGREGATE TABLES.					
Old Assurances	15,266	2,674	2,807	9,785	231,863
New Assurances	41,541	18,768	16,112	6,661	370,728
Total	56,807	21,442	18,919	16,446	602,591
AGGREGATE TABLES, EXCLUDING FIRST FIVE YEARS' EXPERIENCE.					
Old Assurances	14,644	2,674	2,320	9,650	222,556
New Assurances	22,968	13,403	4,735	4,830	213,888
Total	37,612	16,077	7,055	14,480	436,444
AGGREGATE TABLES, EXCLUDING FIRST TEN YEARS' EXPERIENCE.					
Old Assurances	13,503	2,674	1,689	9,140	197,632
New Assurances	14,588	9,673	1,740	3,175	120,120
Total	28,091	12,347	3,429	12,315	317,752
DIFFERENCE BETWEEN SELECT TABLES AND FULL AGGREGATE TABLES.					
Old Assurances	1,723	179	214	1,330	23,921
New Assurances	3,656	1,929	1,011	716	32,599
Total	5,379	2,108	1,225	2,046	56,520

TABLE NO. 3.

SHOWING THE RELATIVE AGE-DISTRIBUTION OF THE YEARS OF RISK, ACCORDING TO THE INSTITUTE OF ACTUARIES' EXPERIENCE H^M, AND THE BRITISH OFFICES' EXPERIENCE, WITH PARTICIPATION O^M, AND WITHOUT PARTICIPATION O^{NM}.

Grouped Ages Attained.	Institute H^M.		British Offices.				Grouped Ages Attained.
			With Participation. O^M.		Without Participation. O^{NM}.		
	Actual.	Proportionate.	Actual.	Proportionate.	Actual.	Proportionate.	
10–19	10,296	9	28,900	4	2,280	4	10–19
20–29	129,296	108	683,446	97	46,053	76	20–29
30–39	340,998	285	1,729,465	245	114,246	189	30–39
40–49	347,700	290	1,862,192	264	142,989	237	40–49
50–59	228,086	190	1,473,466	209	136,160	226	50–59
60–69	107,160	89	880,971	125	102,807	171	60–69
70–79	31,535	26	336,778	48	48,033	80	70–79
80–89	3,906	3	58,545	8	9,507	16	80–89
90 and over	116	....	2,520	....	438	1	90 and over
Total....	1,199,093	1,000	7,056,283	1,000	602,513	1,000	Total.

TABLE NO. 4.

SUMMARY OF DATA.

WHOLE LIFE. FEMALE LIVES. WITH PARTICIPATION.

O^{F}.

Section of Experience.	Entered.	Existing.	With-drawals.	Died.	Years of Risk.
SELECT TABLES.					
Old Assurances	16,158	3,055	2,639	10,464	258,237
New Assurances	30,094	15,108	9,661	5,325	295,649
Total	46,252	18,163	12,300	15,789	553,886
FULL AGGREGATE TABLES.					
Old Assurances	14,653	2,851	2,482	9,320	235,457
New Assurances	27,640	13,636	9,171	4,833	271,585
Total	42,293	16,487	11,653	14,153	507,042
AGGREGATE TABLES, EXCLUDING FIRST FIVE YEARS' EXPERIENCE.					
Old Assurances	14,293	2,851	2,211	9,231	227,420
New Assurances	16,674	9,953	3,109	3,612	162,433
Total	30,967	12,804	5,320	12,843	389,853
AGGREGATE TABLES, EXCLUDING FIRST TEN YEARS' EXPERIENCE.					
Old Assurances	13,342	2,851	1,739	8,752	203,892
New Assurances	10,774	7,074	1,212	2,488	93,419
Total	24,116	9,925	2,951	11,240	297,311

TABLE NO. 5.

SUMMARY OF DATA.

WHOLE LIFE. FEMALE LIVES. WITHOUT PARTICIPATION.

O^{NF}.

Section of Experience.	Entered.	Existing.	Withdrawals.	Died.	Years of Risk.
SELECT TABLES.					
Old Assurances	3,433	467	573	2,393	47,767
New Assurances	8,726	4,177	2,826	1,723	74,714
Total	12,159	4,644	3,399	4,116	122,481
FULL AGGREGATE TABLES.					
Old Assurances	3,181	442	531	2,208	44,530
New Assurances	7,869	3,698	2,622	1,549	67,480
Total	11,050	4,140	3,153	3,757	112,010
AGGREGATE TABLES, EXCLUDING FIRST FIVE YEARS' EXPERIENCE.					
Old Assurances	3,082	442	464	2,176	42,969
New Assurances	4,338	2,417	821	1,100	37,428
Total	7,420	2,859	1,285	3,276	80,397
AGGREGATE TABLES, EXCLUDING FIRST TEN YEARS' EXPERIENCE.					
Old Assurances	2,861	442	355	2,064	38,543
New Assurances	2,603	1,552	330	721	19,970
Total	5,464	1,994	685	2,785	58,513

TABLE NO. 6.

SHOWING THE RELATIVE AGE-DISTRIBUTION OF THE YEARS OF RISK, ACCORDING TO THE INSTITUTE OF ACTUARIES' FEMALE EXPERIENCE H^{F}, AND THE BRITISH OFFICES' FEMALE EXPERIENCE WITH PARTICIPATION O^{F}, AND WITHOUT PARTICIPATION O^{NF}.

Grouped Ages Attained.	Institute H^{F}.		British Offices. With Participation. O^{F}.		British Offices. Without Participation. O^{NF}.		Grouped Ages Attained.
	Actual.	Proportionate.	Actual.	Proportionate.	Actual.	Proportionate.	
10–19	4,179	28	4,750	9	781	7	10–19
20–29	14,112	94	26,903	53	5,151	46	20–29
30–39	29,485	197	72,004	142	12,947	116	30–39
40–49	35,651	239	114,367	226	21,707	194	40–49
50–59	33,095	222	125,932	248	27,319	244	50–59
60–69	22,411	150	100,380	198	25,493	228	60–69
70–79	8,827	59	50,145	99	14,770	132	70–79
80–89	1,513	10	11,633	23	3,535	31	80–89
90 and over	64	1	678	2	253	2	90 and over
Total. . . .	149,337	1,000	506,792	1,000	111,956	1,000	Total.

TABLE NO. 7.

SUMMARY OF DATA.

Endowment Assurances. Male Lives. With and Without Profit.

O^EM.

Section or Experience.	Entered.	Existing.	With-drawals.	Termina-tions.	Died.	Years of Risk.
Select Tables.						
Old, with Profits.....	2,891	174	523	1,701	493	41,517
without Profits...	2,463	124	481	1,439	419	34,753
New, with Profits.....	113,713	84,413	23,913	1,649	3,738	669,813
without Profits...	21,347	12,603	5,981	1,392	1,371	201,670
Total.....	140,414	97,314	30,898	6,181	6,021	947,753
Full Aggregate Tables.						
Old, with Profits.....	2,774	171	508	1,625	470	39,838
without Profits...	2,401	121	468	1,407	405	33,597
New, with Profits.....	106,361	78,138	23,140	1,544	3,539	630,882
without Profits...	20,507	12,017	5,833	1,342	1,315	193,356
Total.....	132,043	90,447	29,949	5,918	5,729	897,673
Aggregate Tables, Excluding First Five Years' Experience.						
Old, with Profits.....	2,662	171	422	1,625	444	36,970
without Profits...	2,310	121	393	1,405	391	30,912
New, with Profits.....	42,508	34,059	4,837	1,543	2,069	265,198
without Profits...	13,051	8,820	1,943	1,337	951	109,994
Total.....	60,531	43,171	7,595	5,910	3,855	443,074
Aggregate Tables, Excluding First Ten Years' Experience.						
Old, with Profits.....	2,476	171	302	1,622	381	29,657
without Profits...	2,119	121	272	1,393	333	24,208
New, with Profits.....	18,815	14,775	1,453	1,507	1,080	111,616
without Profits...	8,003	5,322	794	1,293	594	57,068
Total.....	31,413	20,389	2,821	5,815	2,388	222,549
Female Lives O^EF. Full Aggregate Tables.						
Old Assurances.....	395	26	59	250	60	.....
New Assurances.....	6,168	4,042	1,583	299	244	.....
Total.....	6,563	4,068	1,642	549	304	42,646

TABLE NO. 8.

SUMMARY OF DATA.

Male Lives. Minor Classes. With and Without Profits.

Section of Experience.	Entered.	Existing.	Withdrawals.	Terminations.	Died.	Years of Risk.
Whole Life Assurances, With Limited Number of Premiums.						
Old Assurances.....	4,511	1,512	392	.....	2,607	.....
New Assurances.....	32,328	25,282	4,603	.....	2,443	.....
Total.....	36,839	26,794	4,995	.....	5,050	410,251
Whole Life Assurances. Ascending Scale of Premiums.						
Old Assurances.....	2,159	454	583	.....	1,122	.....
New Assurances.....	21,121	9,957	9,222	.....	1,942	.....
Total.....	23,280	10,411	9,805	.....	3,064	207,709
Joint-Life Assurances.						
Old Assurances.....	25,79	345	556	727	951	.....
New Assurances.....	6,616	2,322	2,872	689	733	.....
Total.....	9,195	2,667	3,428	1,416	1,684	90,171
Contingent Assurances.						
Old Assurances.....	486	7	196	205	78	.....
New Assurances.....	2,996	916	1,011	869	200	.....
Total.....	3,482	923	1,207	1,074	278	15,586
Temporary Assurances.						
Old Assurances.....	964	.....	276	643	45	.....
New Assurances.....	10,639	1,383	3,422	5,478	356	.....
Total.....	11,603	1,383	3,698	6,121	401	36,489
Female Lives. All Minor Classes.						
Old Assurances.....	3,073	406	649	1,114	904	.....
New Assurances.....	9,294	3,051	3,537	1,877	829	.....
Total.....	12,367	3,457	4,186	2,991	1,733	109,015

TABLE NO. 9.

MODEL OFFICE—O^{M} EXPERIENCE. NUMBER OF POLICIES EXISTING AT THE END OF EACH YEAR.

Duration of Policy.	20.	25.	30.	35.	40.	45.	50.	55.	60.	65.	Duration of Policy.
0	35007	98155	110930	88323	62638	40480	24327	12398	5769	1907	0
1	33647	94905	107740	85860	60875	39336	23650	12029	5540	1838	1
2	30209	86361	99742	79765	56794	36779	22194	11222	5180	1700	2
3	28001	80923	94423	75730	54073	35009	21119	10631	4860	1595	3
4	26337	77106	90452	72599	51874	33610	20215	10160	4602	1503	4
5	25127	74145	87273	70116	50097	32409	19423	9754	4404	1386	5
6	24134	71642	84392	67903	48540	31300	18666	9338	4183	1273	6
7	23224	69482	81803	65848	47116	30354	18004	8961	3995	1193	7
8	22511	67442	79526	64072	45749	29372	17382	8609	3760	1094	8
9	21877	65628	77450	62340	44513	28468	16785	8257	3551	1017	9
10	21283	63994	75600	60762	43319	27601	16137	7864	3327	930	10
11	20678	62320	73690	59125	42143	26711	15552	7485	3121	840	11
12	20188	60928	71968	57634	41043	25859	14990	7106	2913	761	12
13	19705	59531	70366	56213	39906	24998	14412	6660	2679	678	13
14	19254	58222	68738	54741	38809	24155	13801	6295	2461	592	14
15	18828	57020	67154	53361	37707	23317	13185	5922	2262	513	15
16	18431	55828	65692	52031	36581	22454	12520	5551	2053	456	16
17	18016	54653	64122	50658	35504	21592	11909	5190	1837	389	17
18	17657	53537	62611	49357	34344	20750	11258	4777	1632	330	18
19	17279	52405	61128	47967	33181	19861	10569	4396	1453	264	19
20	16859	51297	59686	46588	32007	18972	9909	4028	1282	220	20
21	16489	50234	58245	45167	30882	18086	9261	3652	1117	177	21
22	16142	49128	56807	43810	29763	17162	8569	3274	941	144	22
23	15770	48066	55457	42457	28582	16252	7889	2934	799	110	23
24	15450	46986	54033	41183	27483	15348	7242	2578	667	80	24
25	15083	45949	52597	39891	26211	14326	6674	2237	543	66	25
26	14761	44888	51127	38540	24962	13350	6012	1924	437	57	26
27	14481	43861	49622	37205	23666	12385	5409	1629	350	42	27
28	14190	42809	48148	35675	22367	11465	4840	1388	275	35	28
29	13884	41695	46646	34232	21045	10533	4231	1148	210	23	29
30	13545	40683	45119	32693	19764	9562	3705	900	153	13	30
31	13219	39641	43596	31203	18477	8620	3171	725	110	6	31
32	12895	38527	42010	29654	17114	7682	2694	550	78	3	32
33	12609	37428	40413	28128	15763	6804	2249	421	51	2	33
34	12287	36304	38836	26525	14498	5984	1850	306	33	2	34
35	11970	35100	37140	24960	13193	5235	1494	232	24		35
36	11645	33922	35451	23368	11984	4529	1220	175	13		36
37	11298	32700	33776	21716	10724	3836	935	128	8		37
38	11004	31410	32027	20024	9561	3217	705	93	7		38
39	10688	30014	30168	18370	8383	2657	542	61	4		39
40	10359	28677	28371	16737	7256	2109	417	35	3		40
41	10051	27379	26491	15193	6229	1712	283	17			41
42	9691	26078	24608	13581	5309	1298	192	9			42
43	9256	24655	22749	12067	4432	1014	142	5			43
44	8768	23279	20843	10574	3649	753	92	5			44
45	8318	21906	18907	9269	2980	578	61	3			45
46	7800	20423	17107	8044	2368	427	35				46
47	7281	19108	15328	6701	1886	336	22				47
48	6834	17604	13771	5639	1481	212	8				48
49	6449	16297	12125	4549	1171	142	3				49
50	6059	15052	10599	3755	886	97	2				50
51	5641	13786	8992	3084	644	50					51
52	5293	12387	7776	2417	452	40					52
53	4936	11096	6471	1908	339	28					53
54	4462	9765	5410	1526	224	28					54
55	4117	8513	4562	1178	133	12					55
56	3785	7430	3719	859	87						56
57	3511	6306	2823	609	44						57
58	3031	5378	2115	418	33						58
59	2609	4468	1622	271	27						59
60	2415	3490	1152	144	16						60
61	2128	2756	839	93	11						61
62	1803	2193	594	50							62
63	1472	1821	400	22							63
64	1253	1376	246	22							64
65	967	1087	141	22							65
66	892	694	106	22							66
67	852	591	63	22							67
68	468	282	63								68
69	341	201	21								69

TABLE NO. 10.

A COMPARISON OF THE CURTATE EXPECTATIONS OF LIFE OF PERSONS, (e_x), AND THE CURTATE EXPECTATIONS OF DURATION OF POLICIES, (e'_x), AT THE DATE OF ASSURING.

Central Age at Entry.	H^M Select.		O^M Select.		Central Age at Entry.
	Persons. e_x	Policies. e'_x	Persons. e_x	Policies. e'_x	
20	40.109	19.850	42.80	24.038	20
25	37.238	22.830	39.09	24.663	25
30	33.929	22.540	35.11	23.914	30
35	30.415	21.230	31.25	22.262	35
40	26.980	19.323	27.74	20.565	40
45	22.952	17.119	24.04	18.497	45
50	20.302	15.178	20.44	16.509	50
55	16.935	13.169	17.61	14.411	55
60	14.225	10.773	14.30	12.293	60
65	12.093	9.450	12.07	10.137	65

TABLE NO. 11.

CURTATE EXPECTATION OF DURATION OF POLICIES EFFECTED AT CENTRAL AGES AND WHICH HAVE BEEN IN FORCE FOR CERTAIN PERIODS.

Years in Force.	Age at Entry.					Years in Force.
	20.	25.	30.	35.	40.	
0	24.038	24.663	23.914	22.262	20.565	0
1	24.010	24.508	23.622	21.901	20.162	1
2	25.741	25.932	24.516	22.574	20.611	2
3	26.772	26.675	24.897	22.777	20.648	3
4	27.463	26.995	24.907	22.759	20.524	4
5	27.786	27.073	24.900	22.566	20.203	5
6	27.929	27.019	24.751	22.306	19.901	6
7	28.023	26.859	24.534	21.997	19.503	7
8	27.911	26.672	24.236	21.606	19.085	8
9	27.720	26.409	23.859	21.207	18.615	9
10	27.494	26.083	23.471	20.757	18.128	10

Years in Force.	Age at Entry.					Years in Force.
	45.	50.	55.	60.	65.	
0	18.497	16.509	14.411	12.293	10.137	0
1	18.035	15.982	13.853	11.801	9.518	1
2	18.272	16.031	13.849	11.621	9.291	2
3	18.214	15.847	13.619	11.386	8.902	3
4	17.972	15.555	13.250	11.025	8.447	4
5	17.638	15.190	12.802	10.520	8.160	5
6	17.263	14.806	12.372	10.076	7.885	6
7	16.801	14.350	11.893	9.550	7.413	7
8	16.363	13.864	11.379	9.147	7.084	8
9	15.882	13.357	10.864	8.686	6.620	9
10	15.381	12.893	10.407	8.271	6.240	10

TABLE NO. 12.

SHOWING, OUT OF 10,000 ENTRANTS AT REPRESENTATIVE AGES, THE NUMBER OF SURVIVORS AT THE END OF QUINQUENNIAL TERMS BY VARIOUS MORTALITY TABLES.

Term.	American Experience.	H^M Aggregate.	H^M Select.	H^{M5}	O^M Aggregate.	O^M Select.	O^{M5}	O^{NM} Aggregate.	O^{NM} Select.	Term.
Age at Entry 20.										
0	10000	10000	10000	10000	10000	10000	10000	10000	10000	0
5	9611	9671	9554	9512	9786	9771	9672	9638	9784	5
10	9223	9339	9089	9049	9532	9450	9333	9366	9478	10
15	8833	8967	8676	8637	9227	9083	8975	9028	9102	15
20	8431	8552	8223	8187	8861	8687	8583	8629	8949	20
25	8007	8098	7755	7720	8425	8229	8138	8136	8789	25
30	7535	7558	7208	7176	7899	7697	7613	7582	8159	30
35	6970	6912	6550	6521	7249	7050	6973	6913	7950	35
40	6252	6118	5767	5742	6436	6249	6179	6103	7130	40
45	5326	5123	4804	4783	5423	5263	5199	5117	6143	45
50	4164	3962	3780	3678	4211	4090	4033	3932	.....	50
Age at Entry 25.										
0	10000	10000	10000	10000	10000	10000	10000	10000	10000	0
5	9597	9657	9607	9513	9741	9756	9650	9696	9756	5
10	9190	9272	9170	9081	9429	9405	9280	9346	9304	10
15	8773	8842	8692	8607	9055	8995	8875	8932	8828	15
20	8331	8373	8197	8117	8610	8521	8415	8422	8381	20
25	7840	7815	7619	7544	8072	7970	7872	7849	7960	25
30	7252	7147	6924	6856	7408	7300	7210	7157	7216	30
35	6505	6325	6096	6036	6576	6471	6389	6317	6190	35
40	5542	5297	5078	5029	5542	5450	5375	5297	5365	40
45	4332	4097	3904	3866	4303	4235	4170	4070	4188	45
50	2947	2761	2621	2596	2940	2903	2848	2751	2347	50

TABLE NO. 12—*Continued.*

Term.	American Experience.	H^M Aggregate.	H^M Select.	H^{M5}	O^M Aggregate.	O^M Select.	O^{M5}	O^{NM} Aggregate.	O^{NM} Select.	Term.
				AGE AT ENTRY 30.						
0.....	10000	10000	10000	10000	10000	10000	10000	10000	10000	 0
5.....	9576	9601	9617	9546	9680	9732	9616	9640	9589	 5
10.....	9141	9157	9116	9048	9296	9339	9196	9213	9175	10
15.....	8681	8671	8596	8532	8839	8847	8720	8687	8584	15
20.....	8170	8093	7990	7931	8286	8275	8157	8095	7955	20
25.....	7556	7402	7261	7207	7605	7579	7471	7382	7285	25
30.....	6779	6550	6393	6345	6751	6719	6620	6516	6533	30
35.....	5775	5486	5326	5286	5689	5658	5570	5463	5355	35
40.....	4514	4242	4095	4064	4418	4397	4321	4198	4127	40
45.....	3071	2859	2749	2729	3018	3014	2951	2838	3139	45
50.....	1694	1550	1479	1468	1689	1696	1651	1503	1426	50
				AGE AT ENTRY 35.						
0.....	10000	10000	10000	10000	10000	10000	10000	10000	10000	 0
5.....	9546	9537	9581	9478	9604	9695	9564	9558	9568	 5
10.....	9065	9031	9035	8938	9131	9225	9068	9012	8990	10
15.....	8531	8429	8398	8308	8561	8628	8483	8398	8298	15
20.....	7891	7709	7632	7550	7857	7903	7769	7658	7613	20
25.....	7079	6822	6719	6647	6975	7005	6885	6759	6548	25
30.....	6030	5714	5597	5538	5878	5900	5792	5668	5591	30
35.....	4714	4419	4304	4258	4564	4585	4493	4355	4024	35
40.....	3207	2978	2889	2859	3118	3142	3069	2944	2760	40
45.....	1769	1615	1554	1538	1745	1768	1717	1560	1370	45
50.....	670	628	603	597	715	731	703	590	493	50

TABLE NO. 12—*Continued.*

Term.	American Experience.	H^M Aggregate.	H^M Select.	H^{M5}.	O^M Aggregate.	O^M Select.	O^{M5}.	O^{NM} Aggregate.	O^{NM} Select.	Term.
Age at Entry 40.										
0	10000	10000	10000	10000	10000	10000	10000	10000	10000	0
5	9497	9469	9533	9430	9508	9637	9482	9429	9503	5
10	8937	8838	8861	8765	8914	9056	8870	8787	8879	10
15	8266	8083	8053	7966	8181	8295	8124	8012	8104	15
20	7415	7154	7090	7013	7263	7353	7199	7073	7033	20
25	6317	5991	5906	5842	6120	6192	4057	5930	5814	25
30	4938	4633	4541	4492	4752	4813	4698	4556	4511	30
35	3359	3122	3049	3016	3247	3298	3209	3080	2824	35
40	1853	1693	1640	1622	1817	1856	1796	1632	1941	40
45	702	659	636	629	744	767	735	618	678	45
50	108	177	168	167	187	195	185	159	190	50
Age at Entry 45.										
0	10000	10000	10000	10000	10000	10000	10000	10000	10000	0
5	9411	9334	9435	9296	9375	9547	9355	9319	9295	5
10	8704	8536	8574	8447	8604	8798	8568	8497	8484	10
15	7808	7555	7549	7437	7639	7799	7592	7501	7516	15
20	6652	6327	6286	6195	6437	6568	6388	6288	6090	20
25	5200	4893	4835	4763	4998	5104	4955	4832	4623	25
30	3537	3297	3246	3198	3415	3498	3384	3267	2904	30
35	1951	1788	1746	1720	1911	1968	1894	1731	1586	35
40	739	696	677	667	783	813	775	655	480	40
45	114	187	179	177	196	207	195	169	208	45

TABLE NO. 12.—*Continued.*

Term.	American Experience.	H^M Aggregate.	H^M Select.	H^{M5}.	O^M Aggregate.	O^M Select.	O^{M5}.	O^{NM} Aggregate.	O^{NM} Select.	Term.
				AGE AT ENTRY 50.						
0.....	10000	10000	10000	10000	10000	10000	10000	10000	10000	 0
5.....	9249	9146	9283	9088	9178	9408	9159	9118	9287	 5
10.....	8297	8094	8173	8001	8148	8407	8116	8049	8365	10
15.....	7069	6778	6808	6665	6866	7080	6829	6749	6953	15
20.....	5525	5242	5235	5125	5331	5503	5297	5186	5321	....: 20
25.....	3759	3533	3515	3441	3643	3771	3618	3506	3454	25
30.....	2074	1915	1891	1851	2039	2122	2024	1857	1618	30
35.....	786	746	733	718	835	877	828	703	569	35
40.....	121	201	194	190	209	223	208	181	162	40
				AGE AT ENTRY 55.						
0.....	10000	10000	10000	10000	10000	10000	10000	10000	10000	 0
5.....	8971	8850	9023	8804	8878	9194	8861	8827	9010	 5
10.....	7642	7412	7517	7335	7481	7831	7455	7401	7392	10
15.....	5974	5732	5779	5639	5809	6086	5783	5687	5781	15
20.....	4064	3863	3880	3786	3969	4171	3950	3845	3495	20
25.....	2242	2094	2087	2037	2221	2347	2210	2037	1914	25
30.....	850	815	810	790	909	970	905	771	840	30
35.....	131	220	214	209	228	247	227	198	303	35

TABLE NO. 12.—*Continued.*

Term.	American Experience.	H^M Aggregate.	H^M Select.	H^{M5}.	O^M Aggregate.	O^M Select.	O^{M5}.	O^{NM} Aggregate.	O^{NM} Select.	Term.
				AGE AT ENTRY 60.						
0.....	10000	10000	10000	10000	10000	10000	10000	10000	10000	 0
5.....	8519	8375	8589	8331	8427	8869	8414	8385	8548	 5
10.....	6659	6477	6604	6405	6543	7006	6526	6443	6460	10
15.....	4530	4364	4434	4300	4471	4801	4458	4355	4027	15
20.....	2499	2366	2385	2313	2502	2702	2494	2307	2074	20
25.....	947	921	925	897	1024	1116	1021	873	782	25
30.....	146	248	245	237	257	284	256	225	230	30
				AGE AT ENTRY 65.						
0.....	10000	10000	10000	10000	10000	10000	10000	10000	10000	 0
5.....	7817	7734	7989	7689	7765	8382	7757	7684	8634	 5
10.....	5317	5212	5364	5162	5306	5885	5422	5194	5968	10
15.....	2934	2826	2885	2777	2969	3311	2965	2752	3575	15
20.....	1112	1100	1119	1077	1216	1368	1214	1042	1236	20
25.....	172	296	296	285	305	348	305	268	278	25
				AGE AT ENTRY 70.						
0.....	10000	10000	10000	10000	10000	10000	10000	10000	10000	 0
5.....	6803	6739	7072	6714	6833	7672	6830	6760	7035	 5
10.....	3573	3654	3804	3612	3824	4478	3822	3581	4148	10
15.....	1422	1422	1476	1401	1566	1850	1565	1356	1284	15
20.....	220	383	391	371	393	471	393	349	642	20

TABLE NO 13.

COMPARISON OF THE RATES OF PREMIUM BY VARIOUS MORTALITY TABLES.

INTEREST 3½ %.

Age.	BRITISH OFFICES 1863–1893.				INSTITUTE 1863.		Age.
	MALES.			FEMALES.	MALES.		
	Aggregate O^{M}.	Select with Profits $O^{[M]}$.	Select Non-Profit $O^{[NM]}$.	Select $O^{[F]}$.	Aggregate H^{M}.	Select $H^{[M]}$.	
22....	1.284	1.349	1.462	1.547	1.401	1.514	...22
27....	1.514	1.517	1.650	1.662	1.614	1.675	...27
32....	1.797	1.761	1.933	1.853	1.883	1.921	...32
37....	2.147	2.072	2.146	2.071	2.221	2.237	...37
42....	2.590	2.509	2.594	2.469	2.654	2.662	...42
47....	3.166	3.056	3.312	2.932	3.237	3.209	...47
52....	3.928	3.712	3.948	3.566	4.000	3.934	...52
57....	4.951	4.564	5.223	4.495	5.044	4.928	...57
62....	6.342	5.689	5.971	5.749	6.473	6.255	...62
67....	8.258	7.554	6.794	7.725	8.423	8.075	...67

TABLE NO. 14.

COMPARING POLICY VALUES BY VARIOUS MORTALITY TABLES.

INTEREST 3%.

Term.	American Experience.	H^M Aggregate.	H^M Select.	H^{M5}.	O^M Aggregate.	O^{M4}.	Term.
			AGE AT ENTRY 20.				
1.....	.709	.842	1.115	.805	.944	.807	 1
2.....	1.440	1.676	1.920	1.506	1.913	1.635	 2
3.....	2.194	2.530	2.586	2.175	2.895	2.490	 3
4.....	2.971	3.422	3.235	2.826	3.899	3.366	 4
5.....	3.773	4.360	3.907	3.500	4.920	4.270	 5
10.....	8.176	9.440	8.122	7.730	10.300	9.160	10
15.....	13.294	14.996	13.607	13.240	16.110	14.720	15
20.....	19.204	21.119	19.640	19.300	22.400	20.930	20
25.....	25.954	27.987	26.599	26.290	29.210	27.770	25
30.....	33.521	35.353	34.096	33.820	36.500	35.150	30
35.....	41.697	43.175	41.944	41.700	44.150	42.920	35
40.....	50.187	51.238	50.116	49.910	51.980	50.870	40
45.....	58.634	59.128	58.136	57.960	59.710	58.750	45
50.....	66.630	66.772	65.902	65.760	67.050	66.250	50
			AGE AT ENTRY 25.				
1.....	.860	1.018	1.311	.755	1.095	.967	 1
2.....	1.747	2.067	2.386	1.583	2.209	1.963	 2
3.....	2.661	3.134	3.337	2.458	3.339	2.985	 3
4.....	3.604	4.215	4.274	3.390	4.488	4.033	 4
5.....	4.576	5.311	5.261	4.390	5.660	5.110	 5
10.....	9.894	11.121	10.916	10.090	11.770	10.920	10
15.....	16.036	17.523	17.137	16.370	18.390	17.400	15
20.....	23.050	24.705	24.313	23.620	25.540	24.550	20
25.....	30.914	32.406	32.044	31.420	33.210	32.260	25
30.....	39.411	40.585	40.135	39.580	41.260	40.380	30
35.....	48.233	49.016	48.562	48.090	49.490	48.680	35
40.....	57.012	57.265	56.832	56.440	57.620	56.910	40
45.....	65.321	65.285	64.840	64.520	65.350	64.740	45
50.....	72.807	72.496	72.187	71.930	72.390	71.900	50
			AGE AT ENTRY 30.				
1.....	1.049	1.173	1.542	1.106	1.256	1.163	 1
2.....	2.131	2.371	2.877	2.261	2.535	2.355	 2
3.....	3.245	3.597	4.126	3.455	3.830	3.579	 3
4.....	4.392	4.852	5.359	4.696	5.147	4.830	 4
5.....	5.573	6.135	6.623	5.970	6.490	6.120	 5
10.....	12.010	12.897	13.144	12.540	13.500	12.950	10
15.....	19.361	20.481	20.666	20.110	21.080	20.480	15
20.....	27.602	28.614	28.770	28.270	29.210	28.610	20
25.....	36.506	37.252	37.251	36.810	37.740	37.160	25
30.....	45.751	46.156	46.084	45.710	46.470	45.920	30
35.....	54.951	54.868	54.752	54.440	55.080	54.590	35
40.....	63.659	63.309	63.146	62.890	63.270	62.840	40
45.....	71.503	70.953	70.847	70.640	70.740	70.390	45
50.....	78.687	77.274	77.146	76.990	77.230	76.950	50

TABLE NO. 14—*Continued.*

Term.	American Experience.	H^M Aggregate.	H^M Select.	H^{M5}.	O^M Aggregate.	O^{M5}.	Term.
			AGE AT ENTRY 35.				
1	1.288	1.394	1.805	1.347	1.454	1.395	1
2	2.613	2.808	3.410	2.719	2.929	2.822	2
3	3.976	4.245	4.935	4.109	4.428	4.278	3
4	5.377	5.709	6.419	5.522	5.952	5.768	4
5	6.816	7.203	7.885	6.980	7.500	7.280	5
10	14.601	15.284	15.862	15.040	15.610	15.300	10
15	23.328	23.948	24.456	23.720	24.300	23.950	15
20	32.758	33.151	33.451	32.800	33.420	33.070	20
25	42.549	42.636	42.819	42.260	42.750	42.400	25
30	52.292	51.918	52.012	51.540	51.970	51.630	30
35	61.514	60.910	60.914	60.530	60.730	60.420	35
40	69.821	69.054	69.082	68.780	68.710	68.460	40
45	77.429	75.788	75.762	75.530	75.650	75.450	45
50	84.401	80.912	80.946	80.760	81.410	81.260	50
			AGE AT ENTRY 40.				
1	1.586	1.653	2.146	1.626	1.701	1.669	1
2	3.214	3.356	4.082	3.319	3.428	3.368	2
3	4.885	5.105	5.935	5.053	5.180	5.099	3
4	6.599	6.889	7.749	6.840	6.960	6.861	4
5	8.354	8.708	9.558	8.660	8.770	8.650	5
10	17.720	18.045	18.796	17.990	18.160	17.980	10
15	27.840	27.962	28.465	27.750	28.030	27.810	15
20	38.347	38.183	38.535	37.930	38.110	37.870	20
25	48.802	48.186	48.417	47.910	48.080	47.830	25
30	58.699	57.876	57.985	57.570	57.540	57.310	30
35	67.614	66.652	66.765	66.440	66.170	65.980	35
40	75.778	73.909	73.946	73.690	73.670	73.520	40
45	83.260	79.430	79.518	79.310	79.900	79.790	45
50	89.868	84.926	85.122	84.975	84.811	84.725	50
			AGE AT ENTRY 45.				
1	1.961	2.012	2.577	2.013	2.008	1.990	1
2	3.965	4.038	4.918	4.044	4.042	4.007	2
3	6.012	6.079	7.157	6.093	6.103	6.051	3
4	8.098	8.143	9.306	8.154	8.190	8.122	4
5	10.220	10.228	11.386	10.210	10.300	10.220	5
10	21.262	21.091	21.938	20.910	21.110	20.980	10
15	32.727	32.287	32.927	32.040	32.170	31.990	15
20	44.135	43.243	43.710	42.970	43.090	42.890	20
25	54.934	53.858	54.152	53.550	53.460	53.270	25
30	64.662	63.471	63.733	63.250	62.930	62.760	30
35	73.569	71.420	71.568	71.190	71.140	71.020	35
40	81.734	77.468	77.649	77.350	77.970	77.870	40
45	88.945	83.488	83.765	83.550	83.351	83.279	45
			AGE AT ENTRY 50.				
1	2.400	2.357	3.099	2.328	2.373	2.357	1
2	4.833	4.754	5.913	4.672	4.769	4.738	2
3	7.296	7.182	8.553	7.063	7.182	7.138	3
4	9.786	9.632	11.074	9.466	9.612	9.556	4
5	12.299	12.100	13.515	11.910	12.060	11.980	5
10	25.069	24.573	25.690	24.310	24.380	24.250	10
15	37.776	36.777	37.637	36.480	36.560	36.400	15
20	49.804	48.601	49.204	48.260	48.120	47.950	20
25	60.639	59.309	59.820	59.070	58.670	58.520	25
30	70.561	68.164	68.501	67.920	67.830	67.720	30
35	79.655	74.901	75.238	74.780	75.440	75.360	35
40	87.687	81.607	82.013	81.679	81.440	81.376	40

TABLE NO. 14—*Continued.*

Term.	American Experience.	H^M Aggregate.	H^M Select.	$H^{M(5)}$	O^M Aggregate.	$O^{M(5)}$	Term.
			AGE AT ENTRY 55.				
1.....	2.887	2.823	3.775	2.781	2.792	2.777	 1
2.....	5.791	5.655	7.133	5.590	5.594	5.563	 2
3.....	8.708	8.496	10.197	8.399	8.401	8.453	 3
4.....	11.633	11.345	13.088	11.231	11.209	11.145	 4
5.....	14.561	14.189	15.888	14.080	14.010	13.940	 5
10.....	29.050	28.074	29.411	27.890	27.860	27.740	10
15.....	42.764	41.526	42.505	41.270	41.010	40.870	15
20.....	55.119	53.708	54.520	53.540	53.000	52.880	20
25.....	66.432	63.781	64.346	63.580	63.420	63.320	25
30.....	76.801	71.446	71.971	71.370	72.080	72.000	30
35.....	85.960	79.075	79.641	79.203	78.896	78.840	35
			AGE AT ENTRY 60.				
1.....	3.423	3.297	4.633	3.275	3.255	3.237	 1
2.....	6.837	6.569	8.616	6.541	6.498	6.462	 2
3.....	10.235	9.810	12.053	9.762	9.722	9.672	 3
4.....	13.611	13.100	15.215	12.948	12.924	12.864	 4
5.....	16.958	16.180	18.263	16.080	16.100	16.030	 5
10.....	33.010	31.857	33.425	31.650	31.390	31.290	10
15.....	47.471	46.053	47.338	45.930	45.340	45.250	15
20.....	60.712	57.792	58.715	57.610	57.460	57.380	20
25.....	72.848	66.725	67.545	66.680	67.520	67.470	25
30.....	83.567	75.615	76.426	74.795	75.457	75.413	30
			AGE AT ENTRY 65.				
1.....	3.987	3.757	5.722	3.717	3.744	3.730	 1
2.....	7.922	7.497	10.410	7.413	7.449	7.419	 2
3.....	11.796	11.231	13.996	11.119	11.098	11.061	 3
4.....	15.601	14.978	17.582	14.825	14.696	14.649	 4
5.....	19.329	18.703	21.187	18.550	18.230	18.170	 5
10.....	36.743	35.640	37.657	35.570	34.850	34.790	10
15.....	52.688	49.645	51.126	49.490	49.290	49.250	15
20.....	67.303	60.301	61.579	60.290	61.290	61.260	20
25.....	80.211	70.908	72.092	71.158	70.748	70.721	25
			AGE AT ENTRY 70.				
1.....	4.518	4.514	7.229	4.521	4.243	4.234	 1
2.....	8.928	8.904	12.793	8.931	8.401	8.391	 2
3.....	13.235	13.112	16.843	13.160	12.471	12.453	 3
4.....	17.450	17.087	20.673	17.160	16.438	16.419	 4
5.....	21.586	20.833	24.252	20.900	20.330	20.310	 5
10.....	41.352	38.060	40.617	37.990	37.990	37.980	10
15.....	59.468	51.168	53.318	51.250	52.660	52.650	15
20.....	75.469	64.215	66.091	64.590	64.226	64.214	20

TABLE NO. 15.

SHOWING THE RELATIVE RESERVES BY VARIOUS MORTALITY TABLES, AT VARIOUS RATES OF INTEREST, AND A COMPARISON OF EACH WITH THE RESERVE BY THE O^M TABLE AT 3 PER CENT. INTEREST.

Age of Office =	5 Years.		10 Years.		15 Years.		20 Years.		25 Years.	
Tables and Rate of Interest.	Actual Reserve.	Comparative Reserve O^M 3% = 10,000.	Actual Reserve.	Comparative Reserve O^M 3% = 10,000.	Actual Reserve.	Comparative Reserve O^M 3% = 10,000.	Actual Reserve.	Comparative Reserve O^M 3% = 10,000.	Actual Reserve.	Comparative Reserve O^M 3% = 10,000.
H^M Select.....3 %	28,978	11,629	87,408	10,888	165,989	10,546	256,716	10,333	352,803	10,206
3½%	27,335	10.970	82,464	10,272	156,902	9,969	243,208	9,790	334,989	9,690
4 %	25,825	10,364	77,899	9,704	148,478	9,433	230,652	9,284	318,442	9,212
H^M.....2½%	25,978	10,425	83,702	10,427	164,056	10,423	258,765	10,416	359,725	10,406
2¾%	25,051	10,053	80,907	10,078	158,933	10,098	251,197	10,111	349,860	10,121
3 %	24,166	9,698	78,223	9,744	153,988	9,783	243,870	9,816	340,282	9,843
3½%	22,503	9,031	73,158	9,113	144,630	9,189	229,960	9,256	322,035	9,316
4 %	20,968	8,415	68,483	8,531	135,947	8,637	216,983	8,734	304,936	8,821
Combined H^M and $H^{M(5)}$ (H^M alone 1st 5 years)... 2½%	25,978	10,425	88,574	11,033	172,223	10,942	269,196	10,836	371,671	10,751
2¾%	25,051	10,053	85,701	10,676	166,984	10,609	261,493	10,526	361,663	10,462
3 %	24,166	9,698	82,951	10,333	161,949	10,289	254,062	10,226	351,989	10,182
3½%	22,503	9,031	77,752	9,685	152,388	9,682	239,925	9,657	333,507	9,647
4 %	20,968	8,415	72,933	9,085	143,492	9,117	226,728	9,126	316,185	9,146
O^M.....2½%	26,754	10,737	85,810	10,689	167,545	10,645	263,419	10,603	365,246	10,566
2¾%	25,811	10,358	82,974	10,336	162,358	10,315	255,778	10,296	355,289	10,278
3 %	24,918	10,000	80,278	10,000	157,397	10,000	248,435	10,000	345,693	10,000
3½%	23,211	9,315	75,121	9,358	147,902	9,397	234,344	9,433	327,247	9,466
4 %	21,661	8,693	70,388	8,768	139,124	8,839	221,250	8,906	310,006	8,968
O^M Select.....3%	28,430	11,410	87,756	10,932	167,361	10,633	259,725	10,454	375,582	10,344

TABLE NO. 15—*Continued.*

Age of Office =		5 Years.		10 Years.		15 Years.		20 Years.		25 Years.	
Tables and Rates of Interest.		Actual Reserve.	Comparative Reserve O^M 3% = 10,000.	Actual Reserve.	Comparative Reserve O^M 3% = 10,000.	Actual Reserve.	Comparative Reserve O^M 3% = 10,000.	Actual Reserve.	Comparative Reserve O^M 3% = 10,000.	Actual Reserve.	Comparative Reserve O^M 3% = 10,000.
$O^{M(5)}$	2½%	25,777	10,345	83,138	10,356	163,072	10,361	257,293	10,357	357,703	10,347
	2¾%	24,831	9,965	80,320	10,005	157,905	10,032	249,669	10,050	347,764	10,060
	3 %	23,954	9,613	77,648	9,672	152,977	9,719	242,350	9,755	338,188	9,783
	3½%	22,279	8,941	72,573	9,040	143,611	9,124	228,425	9,195	319,924	9,255
	4 %	20,754	8,329	67,903	8,458	134,923	8,572	215,444	8,672	302,808	8,759
Combined O^M and $O^{M(5)}$ throughout	2½%	31,229	12,533	92,541	11,528	175,543	11,153	272,154	10,955	374,395	10,830
	2¾%	30,195	12,118	89,582	11,159	170,204	10,814	264,341	10,640	364,260	10,537
	3 %	29,248	11,738	86,801	10,813	165,147	10,492	256,886	10,340	354,545	10,256
	3½%	27,427	11,007	81,495	10,152	155,501	9,880	242,656	9,767	335,970	9,719
	4 %	25,755	10,336	76,590	9,541	146,523	9,309	229,353	9,232	318,518	9,214
Combined O^M and $O^{M(5)}$ (O^M alone 1st 5 years)	2½%	26,754	10,737	88,066	10,976	171,068	10,869	267,679	10,775	369,920	10,701
	2¾%	25,811	10,358	85,198	10,613	165,820	10,535	259,957	10,464	359,876	10,410
	3 %	24,918	10,000	82,471	10,273	160,817	10,217	252,556	10,166	350,215	10,131
	3½%	23,211	9,315	77,279	9,626	151,285	9,612	238,440	9,598	331,754	9,597
	4 %	21,661	8,693	72,496	9,031	142,429	9,049	225,259	9,067	314,424	9,095
Seventeen Offices	3 %	23,814	9,557	77,315	9,631	152,568	9,693	242,062	9,744	338,161	9,782
	3½%	22,152	8,890	72,267	9,002	143,246	9,101	228,206	9,186	319,987	9,256
	4 %	20,636	8,282	67,633	8,425	134,626	8,553	215,512	8,675	303,185	8,770
American	4 %	19,726	7,916	65,045	8,103	130,195	8,272	209,319	8,426	295,786	8,556

TABLE NO. 15—*Continued.*

Age of Office =	30 Years.		35 Years.		40 Years.		45 Years.		50 Years.	
Tables and Rate of Interest.	Actual Reserve.	Comparative Reserve O^M 3% = 10,000.	Actual Reserve.	Comparative Reserve O^M 3% = 10,000.	Actual Reserve.	Comparative Reserve O^M 3% = 10,000.	Actual Reserve.	Comparative Reserve O^M 3% = 10,000.	Actual Reserve.	Comparative Reserve O^M 3% = 10,000.
H^M Select.....3 %	446,519	10,126	530,674	10,070	600,575	10,038	653,849	10,021	689,931	10,014
3½%	425,056	9,639	506,262	9,607	573,912	9,592	625,755	9,590	661,019	9,594
4 %	404,968	9,184	483,327	9,172	548,994	9,176	599,461	9,187	633,919	9,201
H^M.....2½%	458,364	10,394	547,144	10,383	620,553	10,372	676,133	10,362	713,444	10,355
2¾%	446,526	10,126	533,748	10,129	606,057	10,130	660,917	10,129	697,820	10,128
3 %	435,007	9,864	520,708	9,881	591,921	9,893	646,061	9,901	682,535	9,906
3½%	412,995	9,366	495,722	9,407	564,778	9,440	617,508	9,464	653,185	9,480
4 %	392,288	8,896	472,134	8,959	539,097	9,010	590,447	9,049	625,308	9,076
Combined H^M and $H^{M(5)}$ (H^M alone 1st 5 years)... 2½%	471,256	10,687	560,580	10,638	634,290	10,601	690,023	10,575	727,409	10,557
2¾%	459,271	10,415	547,047	10,381	619,652	10,357	674,664	10,340	711,641	10,329
3 %	447,659	10,152	533,920	10,132	605,433	10,119	659,743	10,111	696,313	10,106
3½%	425,421	9,647	508,711	9,654	578,090	9,662	630,986	9,670	666,746	9,677
4 %	404,499	9,173	484,919	9,202	552,202	9,229	603,721	9,252	638,680	9,270
O^M.....2½%	464,449	10,532	553,525	10,504	627,074	10,481	682,703	10,463	720,035	10,450
2¾%	452,504	10,261	540,033	10,248	612,472	10,237	667,377	10,228	704,289	10,222
3 %	440,973	10,000	526,969	10,000	598,306	10,000	652,496	10,000	688,999	10,000
3½%	418,739	9,496	501,743	9,521	570,918	9,542	623,681	9,558	659,362	9,570
4 %	397,876	9,023	477,989	9,071	545,055	9,110	596,425	9,141	631,297	9,163
O^M Select.....3%	452,991	10,273	538,894	10,226	610,040	10,196	664,048	10,177	700,420	10,166

TABLE NO. 15—*Continued.*

Age of Office =	30 Years.		35 Years.		40 Years.		45 Years.		50 Years.	
Tables and Rate of Interest.	Actual Reserve.	Comparative Reserve O^M 3% = 10,000.	Actual Reserve.	Comparative Reserve O^M 3% = 10,000.	Actual Reserve.	Comparative Reserve O^M 3% = 10,000.	Actual Reserve.	Comparative Reserve O^M 3% = 10,000.	Actual Reserve.	Comparative Reserve O^M 3% = 10,000.
$O^{M(5)}$ 2½%	455,770	10,336	543,995	10,323	616,937	10,311	672,175	10,302	709,279	10,294
2¾%	443,836	10,065	530,495	10,067	602,318	10,067	656,826	10,066	693,515	10,066
3 %	432,315	9,804	517,442	9,819	588,160	9,830	641,947	9,838	678,222	9,844
3½%	410,271	9,304	492,403	9,344	560,954	9,376	613,305	9,399	648,750	9,416
4 %	389,540	8,834	468,786	8,896	535,227	8,946	586,185	8,983	620,815	9,010
Combined O^M and $O^{M(5)}$ throughout..... 2½%	473,822	10,745	563,008	10,684	636,595	10,640	692,239	10,609	729,572	10,589
2¾%	461,693	10,470	549,317	10,424	621,791	10,393	676,710	10,371	713,631	10,358
3 %	450,034	10,206	536,131	10,174	607,504	10,154	661,704	10,141	698,214	10,134
3½%	427,682	9,699	510,791	9,693	580,005	9,694	632,777	9,698	668,462	9,702
4 %	406,612	9,221	486,840	9,238	553,949	9,259	605,336	9,277	640,210	9,292
Combined O^M and $O^{M(5)}$. (O^M alone 1st 5 years....) 2½%	469,347	10,643	558,533	10,599	632,120	10,565	687,764	10,541	725,097	10,524
2¾%	457,309	10,370	544,933	10,341	617,407	10,319	672,326	10,304	709,247	10,294
3 %	445,704	10,107	531,801	10,092	603,174	10,081	657,374	10,075	693,884	10,071
3½%	423,466	9,603	506,575	9,613	575,789	9,624	628,561	9,633	664,246	9,641
4 %	402,518	9,128	482,746	9,161	549,855	9,190	601,242	9,214	636,116	9,232
Seventeen Offices..... 3 %	432,576	9,810	517,937	9,829	588,803	9,841	642,655	9,849	678,943	9,854
3½%	410,645	9,312	493,042	9,356	561,757	9,389	614,189	9,413	649,659	9,429
4 %	390,259	8,850	469,789	8,915	536,421	8,966	587,466	9,003	622,126	9,029
American..... 4 %	381,994	8,663	461,321	8,754	528,450	8,832	580,166	8,892	615,436	8,932

TABLE NO. 16.

SUMMARY OF DATA.

Annuity Experience Male Lives.

O^{AM}.

Section of Experience.	Entered.	Existing.	Died.	Years of Risk.
Select Tables.				
Old Annuities	1391	55	1336	14937
New Annuities	7252	4159	3093	52342
Total	8643	4214	4429	67279
Full Aggregate Tables.				
Old Annuities	1154	45	1109	12386
New Annuities	5687	3189	2498	42505
Total	6841	3234	3607	54891

Annuity Experience Female Lives.

O^{AF}.

Select Tables.				
Old Annuities	4131	181	3950	49960
New Annuities	18928	11776	7152	157417
Total	23059	11957	11102	207377
Full Aggregate Tables.				
Old Annuities	3554	172	3382	43844
New Annuities	15746	9710	6036	133969
Total	19300	9882	9418	177813

TABLE NO. 17.

ANNUITY EXPERIENCE.

SHOWING THE RELATIVE AGE-DISTRIBUTION OF THE YEARS OF RISK, ACCORDING TO THE BRITISH GOVERNMENT EXPERIENCE 1883, AND THE BRITISH OFFICES' EXPERIENCE 1863-1893.

Grouped Ages Attained.	Male Lives.				Female Lives.				Grouped Ages Attained.
	British Government.		British Offices.		British Government.		British Offices.		
	Actual.	Proportionate.	Actual.	Proportionate.	Actual.	Proportionate.	Actual.	Proportionate.	
19	14	}	24	}	91	}	50	}	 19
20–29	454	3	209	4	1342	5	655	4	20–29
30–39	2551	18	773	14	5837	20	2230	13	30–39
40–49	8683	62	2414	45	20328	70	7481	43	40–49
50–59	25316	182	7670	143	55877	192	25112	145	50–59
60–69	47771	343	17471	326	97202	334	58528	337	60–69
70–79	40092	288	18522	346	82544	283	58067	335	70–79
80–89	13500	97	6078	114	26349	90	19772	114	80–89
90–99	900	}	407	}	1733	}	1546	}	90–99
100 & over.....	4	7	4	8	7	6	15	9	.....100 & over
Total.....	139285	1000	53572	1000	291310	1000	173456	1000	

TABLE NO. 18.

COMPARING THE VALUES OF ANNUITIES BY THE BRITISH OFFICES' ANNUITY TABLES 1863–1893 WITH THOSE BY THE BRITISH GOVERNMENT ANNUITY TABLES 1883. INTEREST 3%.

Age.	British Offices' Annuities 1863–1893.				British Government Annuities 1893.				Age.
	Males.		Females.		Males.		Females.		
	Select $a_{[x]}$.	Ultimate a_x.	Select $a_{[x]}$.	Ultimate a_x.	Select $a_{[x]}$.	Ultimate a_x.	Select $a_{[x]}$.	Ultimate a_x.	
40	17.604	17.379	18.257	17.987	16.376	16.180	18.180	17.974	40
45	16.061	15.829	16.931	16.635	15.152	14.963	16.820	16.613	45
50	14.403	14.156	15.514	15.197	13.813	13.640	15.270	15.054	50
55	12.660	12.394	13.965	13.637	12.309	12.174	13.607	13.350	55
60	10.882	10.585	12.231	11.902	10.601	10.501	11.791	11.538	60
65	9.121	8.789	10.333	9.997	8.902	8.568	9.909	9.574	65
70	7.441	7.069	8.406	8.042	7.299	6.818	8.000	7.654	70
75	5.898	5.487	6.614	6.209	5.809	5.285	6.366	5.832	75
80	4.537	4.094	5.054	4.610	4.553	3.916	4.937	4.314	80
85	3.384	2.924	3.751	3.285	.....	2.833	.....	3.029	85
90	2.441	1.987	2.699	2.233	.....	1.982	.....	2.055	90
95	1.693	1.271	1.874	1.436	.....	1.134	.....	1.273	95
100	.....	.742	.....	.856	.....	.275	.....	.216	100

RÉSUMÉ.

DES NOTES BRÈVES DES COMPAGNIES D'ASSURANCE SUR LA VIE EN ANGLETERRE SUR LA DECOUVERTE DES QUOTES-PARTS DE LA MORTALITÉ PENDANT LES ANNÉES 1863-1893.

Par George King.

Les primes des Compagnies d'assurance sur la vie en Angleterre doivent leur origine à la supposition développée successivement, que les quotes-parts de la mortalité se réduisent et que les listes de l'institut des "actueurs" ne sont plus d'accord avec la véritable mortalité parmi les personnes assurées.

Pour cette raison un comité fut établi par l'Institut et la Faculté des Actueurs a été chargé de la tâche d'une révision; le résultat des communications avec les compagnies d'assurances sur la vie fut le suivant:

Une soixantaine des bureaux ont contribué de leurs expériences aux assurances et 42 de leurs expériences aux assurances annuaires.

Il était stipulé que seules participeraient aux primes les personnes résidant en Angleterre, à l'époque de l'emission de leur police d'assurance et qui amaient jour de la prime normale en outre que cette règle serait limitée à trente ans, c'est-à-dire les années 1863 à 1893. Toutes les polices d'assurances pour 1863 étaient enregistrées à une date relative de cet année.

Les primes étaient faites pour la période d'un an de police, et non par an de calendrier, c'est-à-dire, que les polices étaient regardées d'après l'anniversaire, non pas pour le temps du 1 Janvier au 31 Décembre.

En cas qu'une police était rappelée on a adopté la méthode de considérer le temps d'après la durée de la police et permettait "Jours de grâces usuelles."

Les assurances des vies d'hommes et de femmes étaient tenues séparées en tous cas et les polices avec participation à l'avantage étaient aussi tenues séparées des polices sans cet avantage dans toutes les classes principales.

La Table suivante fait voir le genre de polices, employées de cette manière, ainsi que le degré des expériences, constatées dans les tables 1, 2, 4, 5, 7, 8 et 16 de ce papier.

Section des assurances:	*Années de risques:*	*Cas de Morts:*
Assurances sur la vie d'hommes avec participation à l'avantage	8,647,246	177,279
Assurances sur la vie d'hommes sans participation à l'avantage	659,111	18,492
Assurances sur la vie de femmes avec participation à l'avantage	553,886	15,789
Assurances sur la vie de femmes sans participation à l'avantage	122,481	4,116
Assurances de dotation d'hommes	947,753	6,021
Assurances de dotation pour femmes	42,646	304
Assurances des classes mineures pour hommes	760,206	10,477
Assurances des classes mineures pour femmes	109,015	1,733
Total	11,842,344	234,211
Des Annuités:		
d'hommes	67,279	4,429
de femmes	207,377	11,102
	274,656	15,531

Les Classes Mineures sont composées d'assurances sur la vie payables simples ou à primes limitées,
d'assurances sur la vie avec primes augmentées,
d'assurances temporaires,
d'assurances à survivre pour vies réunies,
d'assurances des personnes unies.

Dans toutes les classes principales des listes complètes et bien choisies étaient formées, aussi des listes agrégées et des listes tronquées, c'est-à-dire, des listes, dans lesquelles les risques des premiers ans étaient omis. Toutes les polices

doubles étaient omises de façon, que les expériences étaient basées *aux vies* et *non aux polices*, mais, en omettant les duplicatas, les listes principales et les listes agrégées étaient tenues séparément. Pour cela le nombre des listes agrégées n'est pas le même, que le nombre des listes choisies.

Dans les listes 3 (pour hommes) et 6 (pour femmes) nous trouvons annoncé la distribution d'âges des années de risque dans les classes ordinaires et on voit que l'expérience inclut une plus grande proportion des assurances à un âge avancé, que dans les observations au préalable. Les nouvelles listes sont pour cette raison d'une valeur spéciale; concernant l'assurance à dotations le cas est différent, parceque la majorité des polices de cette classe est d'une origine récente. Cette part de l'expérience, quoique intéressante, n'est pas de beaucoup de valeur.

La table No. 9 de la liste est, comme auparavant, une table choisie pour polices de mortalités, la quote-part des polices rappelées était enveloppée dans les quotes-parts de la table de mortalité et de cela on a procédé à la durée des polices montrée dans les tables 10 et 11. Au temps de la sortie des polices la durée des assurances peut être calculée comme suivant:

Âge à la sortie:	*Durée:*
20	24,038
25	24,663
30	23,914
35	22,262
40	20,565
45	18,497
50	16,509
55	14,411
60	12,293
65	10,137

Les chiffres précédants représentent la durée à l'émission mais, quand 2 ou 3 années sont passées ces chiffres augmentent dans les âges jeunes.

En regard de ce fait, que la plupart des polices sont de longue durée, une des thèses principales des avocats des taxes est réfutée.

La progression des tables de la mortalité comme le font voir les tables nouvelles, est comparée avec le preuve de mortalité des autres tables et on a adopté la méthode de montrer à la fin de cinq années le nombre des survivants, regardant 10,000 personnes d'âges variés. Des tables comparées à une prime de 3½% par an sont citées à la table No. 13, à laquelle nous trouvons, que la nouvelle *Om* table fait voir des primes plus élevées que la table *Hm;* que les polices sans dividendes demandent des primes plus hautes que celles avec un dividende; aussi, les primes pour femmes jusqu'à un âge de 37 ans sont plus hautes que les primes pour hommes, mais après cet âge, plus basses.

De plus il est constaté que les tables agrégées de la mortalité ne sont d'aucune valeur pour le calcul des primes, parcequ'elles montrent leurs quotes-parts trop basses pour les personnes jeunes et trop hautes pour les vieilles personnes.

Dans la table No. 14 des valeurs spéciales pour polices sont constatées et dans la table No. 15 le fonds de réserve d'une compagnie pour l'assurance de la vie et une combination de tables de la mortalité sont déployés. Le Fonds de Réserve de la Compagnie calculé d'accord avec les tables différentes est le suivant:

H^m choisis	10,014
O^m	10,000
H^m	9,906
17 Offices	9,854
O^{m5}	9,844
Américaine	9,754

Ci-dessus est indiqué, que de toutes les tables, qui sont examinées, la table américaine fait voir le moindre fonds réservé, ayant presque 2½% moins que ceux constaté pour le *Om*.

Rente annuelle:

La terminaison du résumé s'occupe des rentes annuelles. Les tables des rentes annuelles étaient graduées par la méthode "Graphic" et aussi par la "Makeham's Formula"; les dernières graduations choisies à la fin.—L'âge en moyenne des vivants observés était haut et la table de mortalité appréciable moins que dans les listes annuelles du Gouvernement de l'Angleterre pour 1883.

Le progrès est plus haut chez les hommes d'un âge à peu près de 70 et chez les femmes au-dessus de cet âge.

KURZE NOTIZ.

KURZE NOTIZEN ÜBER DIE VON BRITISCHEN LEBENSVERSICHERUNGS-GESELLSCHAFTEN WÄHREND 1863-1893 BEZÜGLICH DER STERBE-RATEN GEMACHTEN ERHEBUNGEN.

Von George King.

Die Erhebungen der Britischen Lebensversicherungsgesellschaften verdanken ihren Ursprung der allmählig auftretenden Annahme, dass die Sterberate im Abnehmen begriffen sei, und dass die Tabellen des Institute of Actuaries nicht mehr mit der wirklichen Sterblichkeit unter versicherten Personen übereinstimmten. Aus diesem Grunde wurde vom Institute of Actuaries und der Fakultät der Actuare ein Committee ernannt und mit der Aufgabe betraut. Verbindungen wurden mit den Versicherungsgesellschaften angebahnt und die Folge war, dass sechzig Bureaus dazu beitrugen, Erfahrungen für das Versicherungsgeschäft zu sammeln, und 42 Gesellschaften ihre Erhebungen bezüglich Annuitäten mittheilten.

Es wurde festgesetzt, dass sich die Erhebungen nur auf solche Personen erstrecken sollten, die während der Herausnahme ihrer Versicherungspolicen im Vereinigten Königreich ansässig waren und die normale Prämieneinschätzung genossen; ferner, dass sich die Beobachtungen nur auf 30 Jahre erstrecken sollten, und zwar von 1863 bis 1893. Diejenigen Policen, welche im Jahre 1863 in Kraft waren, wurden in ihrem betreffenden Datum dieses Jahres eingetragen.

Die Erhebungen wurden laut Policenjahren, und nicht nach Kalenderjahren gemacht, d. h. die Policen wurden vom Tage der Ausstellung, und nicht vom 1. Januar bis 31. Dezember verfolgt. Im Falle einer Zurücknahme der Police verfuhr man nach der „Nearest Duration"-Methode (man nahm die nächstliegende Bestanddauer der Police), unter Berücksichtigung der Respekttage.

Männliche und weibliche Versicherte wurden in allen Fällen separat gehalten, und in allen Hauptklassen wurden die Policen mit Antheil am Geschäftsgewinn nicht zusammen mit den Policen ohne Gewinnantheil notirt.

Nachstehende Tabelle zeigt die Arten von Policen, welche in der Untersuchung einbegriffen waren, und gleichfalls wie weit sich die Erhebungen erstreckten. Dieselbe ist eine Zusammenstellung der Tabellen 1, 2, 4, 5, 7, 8 und 16 des Blattes.

Art der Versicherung.	*Jahre des Risikos.*	*Sterbefälle.*
Versicherung auf den Todesfall, mit Gewinnantheil, männlich	8,647,246	177,279
Versicherung auf den Todesfall, ohne Gewinnantheil, männlich	659,111	18,492
Versicherung auf den Todesfall, mit Gewinnantheil, weiblich	553,886	15,789
Versicherung auf den Todesfall, ohne Gewinnantheil, weiblich	122,481	4,116
Versicherung auf den Lebensfall	9,983,724	215,676
Aussteuerversicherung, männlich	947,753	6,021
„ weiblich	42,646	304
Geringere Klassen, männlich	760,206	10,477
„ „ weiblich	109,015	1,733
Gesammt-Versicherungen	11,842,344	234,211
Annuitäten:		
männlich	67,279	4,429
weiblich	207,377	11,102
Zusammen	274,656	15,531

Die „Geringeren Klassen" umfassten:

Versicherungen auf den Todesfall, gegen einmaligen Beitrag oder eine beschränkte Anzahl Prämienzahlungen.

Versicherungen auf den Todesfall mit wachsender Prämie.

Lebensversicherung auf Frist.

Ueberlebensversicherung für verbundene Leben.

Versicherung verbundener Leben.

In allen Hauptklassen werden vollständige ausgewählte Tabellen zusammengesetzt; ferner Aggregatstabellen und Tabellen, d. h. solche, bei welchen die ersten paar Jahre ausgelassen waren.

Alle Doppel-Policen werden unberücksichtigt gelassen, so dass sich die Erhebungen auf *Leben*, und nicht auf *Policen* erstrecken. Bei Weglassung der Duplikat-Policen wurden jedoch die ausgewählten und die Aggregats-Tabellen je für sich allein behandelt, und kommt daher das Ergebniss der Aggregatserhebungen dem Resultat für die ausgewählten Fälle nicht gleich.

Bei den Tabellen 3 (männlich) und 6 (weiblich) des Blattes ist die Altersvertheilung für die Jahre des Risikos in den gewöhnlichen Versicherungen auf den Todesfall angegeben und es ist daraus ersichtlich, dass ein weit grösserer Prozentsatz von Personen höherer Altersstufen zu verzeichnen ist als während früherer Untersuchungen. Aus diesem Grunde sind die neuen Tabellen von besonderem Werthe.

Bei Aussteuerversicherungen liegen die Verhältnisse jedoch anders, da die grosse Mehrzahl der Policen dieser Klasse neueren Datums ist. Aus diesem Grund ist dieser Theil der Erhebungen zwar interessant, aber von keinem grossen Werthe.

Tabelle 9 des Blattes ist sozusagen eine ausgewählte Sterblichkeitstabelle für Policen, zum Unterschiede von der Tabelle für Leben.

Zurückgezogene Policen wurden in der Sterblichkeitsrate mit eingerechnet und daraus Schlüsse bezüglich der Bestanddauer der Policen gezogen, welche in den Tabellen 10 und 11 angegeben sind. Zur Zeit der Herausnahme der Policen kann man durchschnittliche folgende Bestanddauer derselben voraussetzen:

Eintrittsalter.	*Bestanddauer der Police.*
20	24,038
25	24,663
30	23,914
35	22,262
40	20,565
45	18,497
50	16,509
55	14,411
60	12,293
65	10,137

Obenstehende Zahlen repräsentiren die wahrscheinliche Bestanddauer der Police zur Zeit der Herausnahme; nach 2—3 Jahren wird dieselbe jedoch bei den niederen Altersstufen etwas höher.

Durch die Thatsache, dass die Policen gewöhnlich von langer Dauer sind, wird eines der wichtigsten Argumente der Befürworter des Umlagesystems widerlegt.

Zwischen der Sterblichkeitsrate der neuen Tabellen und dem Sterblichkeitsausweis anderer Erhebungen wird in Tabelle 12 des Blattes ein Vergleich gezogen. Man ging dabei so zu Werke, dass man je 10,000 Personen einer repräsentativen Altersstufe nahm und in Zeiträumen von je 5 Jahren die Zahl der Ueberlebenden feststellte.

Vergleichende Prämienraten mit 3½% Interessen sind in Tabelle 12 angeführt, aus welcher hervorgeht, dass die neue *OM* Tabelle eine niedrigere Prämienrate ergibt als die *HM* Tabelle; ferner, dass Versicherungen ohne Gewinnantheil eine höhere Prämienrate erfordern als Policen mit Profitantheil, und dass bis zum Alter von 37 Jahren die Prämienrate für weibliche Versicherte höher ist als für männliche, nach dieser Zeit aber niedriger. Es ist ferner ersichtlich, dass die Aggregats-Sterblichkeitstabellen sich für die Berechnung der Prämien nicht eignen, da die Prämieneinschätzung für die jüngeren Altersklassen zu niedrig, und für die höheren Altersstufen zu hoch ausfällt.

In Tabelle 14 sind Policenwerthe angeführt, und in Tabelle 15 ist der Reservefonds einer Lebensgesellschaft angegeben, wie derselbe durch verschiedene Sterblichkeitsraten berechnet wurde. Ferner enthält dieses Blatt eine Zusammenstellung von Sterblichkeitstabellen. Der Reservefonds der Gesellschaft, nach den verschiedenen Tabellen berechnet, ist folgender:

H^m Select	10,014
O^m	10,000
H^m	9,906
17 Offices	9,854
O^{m5}	9,844
Amerikanisch	9,754

Man sieht aus Obigem, dass von allen untersuchten Tabellen die amerikanische den kleinsten Reservefonds aufweist, indem sie fast 2½% weniger hat, als die *Om*.

Jährliche Rente:

Der Schluss des Auszugs beschäftigt sich mit den jährlichen Renten. Die Tabellen der jährlichen Renten waren nach der Methode „Graphic" und nach der „Makeham-Formel" abgestuft; die letzten ausgesuchten Abstufungen kamen zuletzt. — Das bei Lebenden beobachtete Durchschnittsalter war hoch und die Sterbetafel bedeutend niedriger als in den Listen der englischen Regierung für 1883.

Die Zunahme zeigt sich bei Männern im Alter von ungefähr 70 Jahren und bei Frauen in noch höherem Alter.

DIE STERBLICHKEIT DER SCHWEIZERISCHEN RENTNER.

Von C. Kihm,
Aktuar.

Vorwort.

Im Jahre 1899 beschloss die Direktoren-Konferenz der schweizerischen Lebensversicherungsgesellschaften, gestützt auf einen Bericht des Unterzeichneten, die Erfahrungen der schweizerischen Lebensversicherungsgesellschaften über das Absterben der Rentner zu sammeln und womöglich zu bearbeiten. Der Berichterstatter hatte zur Begründung seines Antrages hauptsächlich auf die eben erschienene Erfahrung der englischen Gesellschaften und den Einfluss des Geschlechtes und der Auto-Selektion hinweisen können. Da nicht feststand, inwiefern die schweizerische Erfahrung mit der englischen übereinstimmt, musste das Ergebnis der schweizerischen Beobachtungen von grossem Interesse sein, dazu geeignet, die englischen zu bestätigen oder zu modifizieren. Die nötigen Vorarbeiten wurden so rasch gefördert, dass die Konferenz bereits im Jahre 1900 den Beschluss fasste, mit der Bearbeitung des Kartenmaterials den. Unterzeichneten zu beauftragen, in der Meinung, dass es ihm freistehen solle, einen andern Sachverständigen damit zu betrauen. Gestützt darauf wurde die Arbeit vom mathematischen Bureau der Schweizerischen Lebensversicherungs- und Rentenanstalt unter Leitung des Mathematikers, Herrn Kihm, ausgeführt. Die Ergebnisse lagen der Konferenz des Jahres 1901 vor und führten zum Beschluss, den Unterzeichneten zu ermächtigen, das Material in einer Fachzeitschrift zur Kenntnis weiterer Kreise zu bringen. Gestützt darauf erstattet hiermit Herr Kihm über die ausgeführte Arbeit und deren Resultate den folgenden Bericht.

G. Schaertlin.

DIE STERBLICHKEIT DER SCHWEIZERISCHEN RENTNER 1858–1899.

Von C. Kihm,
Aktuar.

Die fünf schweizerischen Lebensversicherungsgesellschaften, nämlich

1) Die Schweizerische Lebensversicherungs- und Rentenanstalt in Zürich,
2) La Suisse, Société d'Assurances sur la vie à Lausanne,
3) Die Basler Lebensversicherungs-Gesellschaft in Basel,
4) La Genevoise, Compagnie d'Assurances sur la vie à Genève,
5) Die Schweizerische Sterbe- und Alterskasse in Basel

haben die seit Gründung der Anstalten bei ihren Rentenversicherten gemachten Erfahrungen über die Sterblichkeit zusammengestellt, um zu konstatieren, ob die für die englischen Rentner gefundenen Ergebnisse auch für die schweizerischen Rentner zutreffend seien.

Zur Ermittelung der Sterblichkeit der schweizerischen Rentner wurde zunächst für jede bei den fünf schweizerischen Lebensversicherungsgesellschaften in Betracht fallende Versicherung eine Zählkarte ausgefüllt, welche laut untenstehendem Schema sämtliche für die Beobachtung erforderlichen Daten enthält.

SCHWEIZERISCHE RENTNER.

Gesellschaft ..... Pol. Nr. .....

Bezeichnung der Person, welche die Leibrente bezieht oder beziehen soll.
(bei Frauen)

Geburtsname : ..... verehel. .....

Vornamen : .....

Beruf : ..... Wohnort : .....

	Jahr	Monat	Tag	Beobachtungsdauer:	Art des Austritts :
Datum des Austrittes 18..				Eintrittsalter:	
Datum des Eintrittes 18..				Austrittsalter:	
Datum der Geburt 18..					

Bemerkungen : .....

Diese Zählkarte ist die nämliche, welche bei der Aufstellung der deutschen Rentnersterbetafel benutzt wurde (s. Vereinsblatt für deutsches Versicherungswesen, Jahrgang 1891).

Bei der Ausfüllung der Zählkarten waren die folgenden Regeln zu beachten:

1) Zur Anwendung gelangten zwei Arten von Karten, nämlich weisse Karten für die männlichen und braune Karten für die weiblichen Personen.

2) Personen, welche bei der Aufnahme eine ärztliche Untersuchung durchzumachen hatten, bei der einseitigen Überlebensrente der Versicherte, bei der gegenseitigen Überlebensrente beide Personen, wurden nicht berücksichtigt.

3) Für jede Rentenversicherung, welche in den Büchern der Gesellschaften eingeschrieben war, wurden die beobachteten Daten, mit Ausnahme der unter 2) erwähnten Fälle, durch Ausfüllen von Karten eingetragen.

4) Für jede Versicherung, welche sich auf eine einzige Person bezog, war eine Karte auszufüllen.

5) Fielen bei einer Versicherung mehrere Personen in Betracht, so wurden so viele Karten ausgefüllt, als nicht ärztlich untersuchte Personen vorhanden waren.

6) Wenn bei derselben Gesellschaft mehrere Karten für die nämliche Person auszufüllen waren, so wurde die zweite und jede fernere Karte mit einem Hinweis auf die Policennummer der ersten Karte versehen.

7) Um das Aufsuchen von mehrfachen Versicherungen bei den verschiedenen Gesellschaften zu ermöglichen, wurden die Namen der Versicherten in folgender Reihenfolge aufgeführt: a) Familienname, b) Vornamen, und bei Frauen c) Familienname des Mannes, wobei die Vornamen auszuschreiben oder so abzukürzen waren, dass eine Verwechslung ausgeschlossen blieb.

8) Betreffend die Abgangsart wurden die folgenden Abkürzungen festgesetzt:

† Tod.
A. Ablauf bei Lebzeiten.
R. Rückkauf.
V. Verzicht.
N. Nicht-Einlösung.
U. Umwandlung in eine neue Police.

Veränderungen einer Versicherung, welche nicht mit Ausfertigung einer neuen Police verbunden waren, gaben keinen Anlass zur Ausstellung einer weiteren Karte.

Für die am 31. Dezember 1899 noch bestandenen Versicherungen blieb die Kolumne Abgang unausgefüllt. Bei nicht eingelösten Karten war das Abgangsdatum gleich dem Eintrittsdatum zu setzen und durch die ganze Karte von links oben nach rechts unten ein Strich zu ziehen.

9) Die Rubriken: Beobachtungsdauer, Eintrittsalter und Austrittsalter wurden von den einzelnen Gesellschaften nicht ausgefüllt, indem die mit der Bearbeitung der Karten beauftragte Gesellschaft die genannten Daten zu ermitteln hatte.

Eingeliefert wurden von den fünf Gesellschaften zusammen 7096 Zählkarten. Die Methode der Bearbeitung dieser Karten ist dieselbe, welche bei der Herstellung der deutschen Sterblichkeitstafel für Männer und Frauen angewendet wurde. Wir verweisen diesfalls auf das im Jahre 1883 erschienene Werk: „Deutsche Sterblichkeitstafeln aus den Erfahrungen von 23 Lebensversicherungs-Gesellschaften, veröffentlicht im Auftrage des Kollegiums für Lebensversicherungs-Wissenschaft zu Berlin.“ Eine Abweichung von der dort ausführlich gegebenen Methode wurde nur insoweit getroffen, als Nachversicherungen, sofern die Eintritte in verschiedenen Kalenderjahren erfolgten, wie ebenso viele Neuversicherungen behandelt wurden. Es wurde dabei vorausgesetzt, dass die Selektion bei jeder folgenden Versicherung wie bei einer erst abgeschlossenen Versicherung wirkt, sodass auf diese Weise der Ein-

fluss der Selektion bei jedem folgenden Abschluss mit in Rechnung gebracht wird. Infolge dieser Anordnung musste jeder mehrfach Versicherte zur Zeit des Abschlusses der zweiten oder jeder folgenden in Betracht fallenden Versicherung als ausgetreten und wieder eingetreten behandelt werden, was zur Ausfertigung von 1433 neuen Karten Veranlassung gab.

Für die am 31. Dezember 1899 unter Beobachtung gebliebenen Versicherten wurde dieser Tag als Austrittstag angesetzt.

Die Resultate der Beobachtung sind in den am Schlusse angehängten Tabellen I und II enthalten. Die Tabelle I enthält die Selektionstafeln, also nach männlichen und weiblichen Personen getrennt, für jedes Eintrittsalter und jede Beobachtungsdauer, die Anzahl der unter einjährigem Risiko gestandenen Personen, die Anzahl der durch Tod und bei Lebzeiten abgegangenen Personen, sowie die Anzahl der am 31. Dezember 1899 noch Lebenden. Die Tabelle II gibt, nach Geschlechtern getrennt, für jedes Eintrittsalter die Summe der beobachteten und unter einjährigem Risiko gestandenen Personen, die Summe der gestorbenen, ausgetretenen und der am 31. Dezember 1899 lebenden Personen. Nach dieser Tabelle II standen

	männliche Personen	weibliche Personen
überhaupt unter Beobachtung	2,141	4,556
Davon starben	592	1,198
Davon schieden aus bei Lebzeiten.....	688	1,115
Davon blieben am 31. Dezember 1899 noch unter Beobachtung	861	2,243
Die Anzahl der durchlebten Beobachtungsjahre beträgt	17,550,0	35,918,0

Die grosse Zahl der Austritte bei Lebzeiten erklärt sich hierbei durch die bereits erwähnte Anordnung, dass Nachversicherungen, sofern sie in verschiedenen Kalenderjahren erfolgten, wie ebenso viele Neuversicherungen behandelt wurden.

Auf Grundlage der Zusammenstellungen in Tabelle I und II können die Erfahrungen über die Sterblichkeit der schweizerischen Rentenversicherten mit denen der englischen Rentner verglichen werden, zu welchem Zwecke wir auf die am Schlusse folgenden Tabellen III und IV verweisen.

Die Tabelle III gibt eine Gegenüberstellung der Sterbenswahrscheinlichkeiten nach Selektionstafeln während der 10 ersten Versicherungsjahre, für die Eintrittsalter in Gruppen von je fünf Jahren zusammengefasst, getrennt nach Geschlechtern, sowie nach den schweizerischen und englischen Erfahrungen. Dabei ist die Sterbenswahrscheinlichkeit t Jahre nach dem Eintritt für die Versicherten einer Gruppe der Eintrittsalter $[x-2]$, $[x-1]$, $[x]$, $[x+1]$, $[x+2]$ gleich gesetzt

$$q\big[[x-2].....[x+2]\big]+t=\frac{\theta[x-2]+t+\theta[x-1]+t+\theta[x]+t+\theta[x+1]+t+\theta[x+2]+t}{E[x-2]+t+E[x-1]+t+E[x]+t+E[x+1]+t+E[x+2]+t}$$

wenn $\theta[x]+t$ die Anzahl der von den Eingetretenen des Alters x nach t Jahren gestorbenen, $E[x]+t$ die entsprechende Anzahl der unter Risiko gestandenen Personen bezeichnet.

Durch die Tabelle III wird bestätigt, dass wie bei den englischen, so auch bei den schweizerischen Rentnern die Sterblichkeit der Frauen erheblich geringer als die der Männer ist, dass die Selektion namentlich in den ersten Versicherungsjahren sehr stark wirkt und deren Einfluss jedenfalls länger als 10 Jahre andauert. Immerhin treten die

Resultate bei den schweizerischen Erfahrungen nicht so deutlich hervor, wohl in Folge des geringeren Beobachtungsmaterials. Auch mag bemerkt werden, dass die Sterblichkeit der schweizerischen Rentner etwas grösser als die der englischen ist.

Noch deutlicher gehen diese Resultate aus der Tabelle IV hervor, in welcher, für die beiden Geschlechter und die schweizerischen und englischen Rentner getrennt, die Sterbenswahrscheinlichkeiten für Gruppen von je fünf Altern zusammengefasst, nach Sterbetafeln berechnet angegeben sind, und zwar mit Berücksichtigung der sämtlichen Beobachtungen, sowie mit Weglassung der Beobachtungen der ersten fünf und zehn Versicherungsjahre. Die Sterbenswahrscheinlichkeit der Versicherten einer Gruppe der Alter $x-2$, $x-1$, x, $x+1$, $x+2$ ist dabei

$$q[x-2, \ldots\ldots x+2] = \frac{\theta_{x-2} + \theta_{x-1} + \theta_x + \theta_{x+1} + \theta_{x+2}}{E_{x-2} + E_{x-1} + E_x + E_{x+1} + E_{x+2}}$$

wenn θ_x die Anzahl der gestorbenen und E_x die Anzahl der unter einjährigem Risiko gestandenen Personen des Alters x, entweder bei Berücksichtigung der sämtlichen Beobachtungen, oder mit Weglassung der Beobachtungen der ersten fünf und zehn Versicherungsjahre bedeutet.

Die geringere Sterblichkeit der Frauen findet sich nach dieser Tabelle IV für beide Beobachtungsgruppen bestätigt, ebenso die Zunahme der Sterblichkeit beider Geschlechter für dieselben Alter mit der Versicherungsdauer, also die Abnahme des Einflusses der Selektion mit zunehmender Beobachtungsdauer. Ebenso zeigt sich aus dieser Tabelle deutlich die etwas höhere Sterblichkeitsziffer beider Geschlechter der schweizerischen gegenüber den englischen Rentnern.

Die verschiedene Sterblichkeit nach Geschlechtern und nach der Versicherungsdauer findet ihren Ausdruck auch in den Zahlen der Tabelle V, in welcher die Barwerte der nachschüssigen Leibrente 1 bei einem Zinsfusse von $3\frac{1}{2}\%$ für die Personen beiderlei Geschlechtes, sowie für die schweizerischen und englischen Rentner berechnet sind, und zwar nach Selektionstafeln, sowie nach unausgeglichenen Sterbetafeln mit Berücksichtigung sämtlicher Beobachtungen, desgleichen mit Weglassung der Beobachtungen der ersten fünf und zehn Versicherungsjahre. Die Rentenbarwerte nach Sterbetafeln sind dabei mittelst der unausgeglichenen Lebenswahrscheinlichkeiten, resp. der unausgeglichenen Zahlen der Lebenden nach den gewöhnlichen Formeln ermittelt worden. Die Rentenbarwerte nach Selektionstafeln wurden zunächst für die durchschnittlichen Eintrittsalter der Gruppen von fünf aufeinanderfolgenden Altern bestimmt und hernach auf die mittleren Alter dieser Gruppen umgerechnet. Bezeichnet $[x^1]$ das durchschnittliche Eintrittsalter der im Alter von $[x-2]$, $[x-1]$, $[x]$, $[x+1]$ und $[x+2]$ Jahren eingetretenen Personen einer fünfjährigen Altersgruppe und $[x]$ das mittlere Alter dieser Gruppe, so ist das durchschnittliche Eintrittsalter gleich

$$[x^1] = [x] + \frac{2(E_{[x+2]} - E_{[x-2]}) + E_{[x+1]} - E_{[x-1]}}{E_{[x-2]} + E_{[x-1]} + E_{[x]} + E_{[x+1]} + E_{[x+2]}}$$

Der Rentenbarwert ${}^{a^1}[x^1]$ entsprechend dem durchschnittlichen Alter einer Gruppe ist

$${}^{a^1}[x^1] = v^t \, {}_tp\big[[x-2]\cdots\cdots[x+2]\big]$$

wobei

$${}_tp\big[[x-2]\cdots\cdots[x+2]\big] = \Big(1 - q\big[[x-2]\cdots\cdots[x+2]\big]\Big)$$
$$\Big(1 - q\big[[x-2]\cdots\cdots[x+2]+1\big]\Big)\cdots\cdots\Big(1 - q\big[[x-2]\cdots\cdots[x+2]\big] + t - 1\Big)$$

und t alle Werte von 1 bis zur höchsten Versicherungsdauer annimmt, für welche noch Lebende beobachtet wurden. Der dem mittleren Alter $[x]$ der Gruppe entsprechende Barwert ${}^{a^1}{}_{[x]}$ der Rente 1 ist

$$a^1{}_{[x]} = a^1{}_{[x^1]} + \frac{[x]-[x^1]}{\left[(x+5)^1\right]-\left[(x-5)^1\right]}\left(a^1\left[(x+5)^1\right] - a^1\left[(x-5)^1\right]\right)$$

(Siehe die Formeln in „Combined Experience of Life Annuitants, 1863-1893.")

Nach der Tabelle V ergeben sich für schweizerische und englische Rentner erhebliche Differenzen zwischen den Renteneinheiten der Männer und Frauen, indem der Rente 1 höhere Einkaufssummen für die Frauen entsprechen. Ferner folgt aus dieser Tabelle, dass die Renteneinheiten, nach Sterbetafeln berechnet, für dieselben Alter um so kleiner ausfallen, je längere Zeit seit dem Eintritt verflossen ist. Hervorzuheben sind zudem die Unterschiede zwischen den nach Sterbetafeln mit Berücksichtigung aller Beobachtungen und den nach Selektionstafeln berechneten Renteneinheiten. Während die ersteren Werte für die jüngeren Alter grösser als die letzteren ausfallen, sind für die mittleren Alter beide Werte annähernd gleich, und für die höheren Alter tritt das umgekehrte Verhältnis ein. Der Grund hierfür ist leicht festzustellen. Bei einer Sterbetafel, welche sämtliche Beobachtungen umfasst, wird bei der Ermittlung der Sterblichkeit der Einfluss der Selektion der später Eingetretenen mit in Anschlag gebracht. Bei den jüngeren Altern ist die Anzahl der nicht mehr unter der Wirkung der Selektion stehenden Versicherten eine geringe; die Sterblichkeit dieser Alter wird also durch die zahlreich stattfindenden Neueintritte erheblich beeinflusst. Für die höheren Alter dagegen übt umgekehrt die Sterblichkeit der nicht mehr unter der Wirkung der Selektion stehenden Versicherten einen bestimmenden Einfluss aus. Für die mittleren Alter kompensieren sich diese beiden Einflüsse.

Abweichungen von diesen Regeln für die schweizerischen Rentner erklären sich durch das erheblich geringere Beobachtungsmaterial.

Die etwas höhere Sterblichkeit der schweizerischen gegenüber den englischen Rentnern mag zum Teil davon herrühren, dass die Sterblichkeit in der Schweiz überhaupt eine grössere ist als in England, zum andern Teile sich aber auch aus dem Umstande erklären lassen, dass unter den beobachteten schweizerischen Rentnern sich Personen befinden, welche obligatorisch versicherten Verbänden angehören, für welche der Einfluss der Selektion sich nur in einem sehr geringen Masse oder überhaupt nicht geltend macht.

TABLE I.

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les hommes.

1 Age d'observation à partir de l'année incl.	jusqu'à l'année excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 0 ans inclusivement jusqu'à 1 an exclusivement.						
0	1	2	....	....	2	21
1	2	2	1	1	4	39
2	3	....	1	....	1	35.5
3	4	....	....	....	....	35
4	5	....	....	....	....	35
5	6	....	....	....	....	35
6	7	....	....	1	1	34.5
7	8	....	....	....	....	34
8	9	1	....	....	1	34
9	10	....	....	....	....	33
10	11	....	....	....	....	33
11	12	....	1	....	1	32.5
12	13	....	....	....	....	32
13	14	....	....	....	....	32
14	15	....	....	1	1	31.5
15	16	....	....	....	....	31
16	17	....	....	....	....	31
17	18	....	....	....	....	31
18	19	....	....	....	....	31
19	20	....	....	2	2	30
20	21	....	....	....	....	29
21	22	....	....	....	....	29
22	23	....	....	....	....	29
23	24	....	....	1	1	28.5
24	25	....	....	1	1	27.5
25	26	....	....	....	....	27
26	27	1	....	1	2	26.5
27	28	1	....	3	4	23.5
28	29	....	....	1	1	20.5
29	30	....	....	2	2	19
30	31	....	....	....	....	18
31	32	....	....	1	1	17.5
32	33	....	....	1	1	16.5
33	34	....	....	2	2	15
34	35	....	....	3	3	12.5
35	36	....	....	2	2	10
36	37	....	....	3	3	7.5
37	38	....	....	....	....	6
38	39	....	....	2	2	5
39	40	....	....	2	2	3
40	41	....	....	1	1	1.5
41-42	43	....	....	1	1	0.5
		7	3	32	42	1023.5
Age d'entrée: 1 an inclusivement jusqu'à 2 ans exclusivement.						
1-2	3	....	1	....	1	3.5
2	4	....	....	1	1	6.5
3	5	....	....	....	....	6
4	6	....	....	1	1	5.5
5	7	....	....	....	....	5
6	8	....	....	....	....	5
7	9	....	....	....	....	5

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les hommes.

1 Age d'observation à partir de l'année incl.	jusqu'à l'année excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 1 an inclusivement jusqu'à 2 ans exclusivement..						
8		....	....	....	....	5
9		....	....	....	....	5
10		....	....	....	....	5
11		....	....	....	....	5
12		1	....	....	1	5
13		....	....	....	....	4
14		....	....	....	....	4
15		....	....	....	....	4
16		....	....	....	....	4
17		....	....	....	....	4
18		....	....	....	....	4
19		....	....	....	....	4
20		....	....	....	....	4
21		....	....	....	....	4
22		....	....	....	....	4
23		....	....	....	....	4
24		....	....	....	....	4
25		....	....	....	....	4
26		....	....	....	....	4
27		....	....	....	....	4
28		....	....	....	....	4
29		....	....	....	....	4
30		....	....	....	....	4
31		....	....	....	....	4
32		....	....	1	1	3.5
33		....	....	1	1	2.5
34		....	....	....	....	2
35		....	....	....	....	2
36-37		....	....	2	2	1
		1	1	6	8	148.5
Age d'entrée: 2 ans inclusivement jusqu'à 3 ans exclusivement.						
2-3		....	....	....	....	5
3		....	....	....	....	10
4		....	....	....	....	10
5		....	....	....	....	10
6		....	....	....	....	10
7		....	....	1	1	9.5
				1	1	54.5
Age d'entrée: 2-3 ans.						
8-9		....	....	....	....	9
9		....	....	....	....	9
10		....	....	....	....	9
11		....	....	....	....	9
12		....	....	1	1	8.5
13		....	....	....	....	8
14		....	....	2	2	7
15		....	....	....	....	6
16		....	....	....	....	6
17		....	....	....	1	6
18		....	....	....	....	6
19		....	....	....	....	6
20		....	....	....	....	6

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les hommes.

1 Age d'observation à partir de l'année incl.	jusqu'à l'année excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
			Age d'entrée: 2-3 ans.			
21		....	....	....	....	6
22		....	....	....	....	6
23		....	....	....	....	6
24		....	....	....	....	6
25		....	....	....	....	6
26		....	....	1	1	5.5
27		....	....	1	1	4.5
28		....	....	....	....	4
29		....	....	....	....	4
30		....	....	....	....	4
31		....	....	....	....	4
32		....	....	1	1	3.5
33		....	....	....	....	3
34		....	....	....	....	3
35		....	....	2	2	2
36		....	....	....	....	1
37-38		....	....	1	1	0.5
				10	10	219
			Age d'entrée: 3-4 ans.			
3-4		....	....	1	1	3
4		....	....	....	....	6
5		....	....	....	....	6
6		....	....	1	1	5.5
7		....	....	....	....	5
8		....	....	1	1	4.5
9		....	....	....	....	4
10		....	....	....	....	4
11		....	....	1	1	3.5
12		....	....	....	....	3
13		....	....	....	....	3
14		....	....	....	....	3
15		....	....	....	....	3
16		....	....	....	....	3
17		....	....	....	....	3
18		....	....	....	....	3
19		....	....	....	....	3
20		....	....	1	1	2.5
21		....	....	....	....	2
22		....	....	....	....	2
23		....	....	....	....	2
24		....	....	....	....	2
25		....	....	....	....	2
26		....	....	....	....	2
27		....	....	....	....	2
28		....	....	....	....	2
29		....	....	....	....	2
30		....	....	....	....	2
31		....	....	1	1	1.5
32		....	....	....	....	1
33		....	....	....	....	1
34		....	....	....	....	1
35		....	....	....	....	1
36		....	....	....	....	1

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les hommes.

1 Age d'observation à partir de l'année incl.	jusqu'à l'année excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
			Age d'entrée: 3-4 ans.			
37		....	....	....	....	1
38-39		....	....	1	1	0.5
				7	7	96
			Age d'entrée: 4-5 ans.			
4-5		....	....	....	....	1
5		....	....	....	....	2
6		....	....	....	....	2
7		....	....	....	....	2
8		....	....	....	....	2
9		....	....	....	....	2
10		....	....	....	....	2
11		....	....	....	....	2
12		....	....	....	....	2
13		....	....	....	....	2
14		....	....	....	....	2
15		....	1	....	1	1.5
16-17		....	1	....	1	0.5
			2	....	2	23
			Age d'entrée: 5-6 ans.			
5-6		....	....	....	....	1
6		....	1	....	1	1.5
7		....	....	....	....	1
8		....	....	....	....	1
9		....	....	....	....	1
10-11		....	....	1	1	0.5
			1	1	2	6
			Age d'entrée: 6-7 ans.			
6-7		....	....	....	....	1
7		....	....	....	....	2
8		....	....	....	....	2
9		....	....	....	....	2
10		....	....	....	....	2
11		....	....	....	....	2
12		....	....	....	....	2
13		....	....	....	....	2
14		....	....	....	....	2
15		....	....	....	....	2
16		1	....	....	1	2
17		....	....	....	....	1
18		....	....	....	....	1
19		....	....	....	....	1
20		....	....	....	....	1
21-22		1	....	....	1	1
		2	....	....	2	26
			Age d'entrée: 7-8 ans.			
7-8		....	....	....	....	1.5
8		....	....	....	....	3

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les hommes.

1 Age d'observation à partir de l'année incl.	jusqu'à l'année excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
			Age d'entrée: 7-8 ans.			
9		1	....	....	1	3
10		....	....	....	....	2
11		....	....	....	....	2
12		....	....	....	....	2
13		....	....	....	....	2
14		....	....	....	....	2
15		....	....	....	....	2
16-17		....	2	....	2	1
		1	2	....	3	20.5
			Age d'entrée: 8-9 ans.			
8-9		....	....	....	....	2
9		....	....	....	....	4
10		....	....	....	....	4
11		....	....	....	....	4
12		....	....	....	....	4
13		....	....	....	....	4
14		....	....	....	....	4
15		....	....	1	1	3.5
16		....	1	....	1	2.5
17		....	....	....	....	2
18		....	....	1	1	1.5
19		....	....	....	....	1
20		....	....	....	....	1
21		....	....	....	....	1
22		....	....	....	....	1
23		....	....	....	....	1
24		....	....	....	....	1
25		....	....	....	....	1
26		....	....	....	....	1
27		....	....	....	....	1
28		....	....	....	....	1
29		....	....	....	....	1
30-31		....	....	1	1	0.5
		....	1	3	4	47
			Age d'entrée: 9-10 ans.			
9-10		....	....	....	....	4.5
10		....	1	....	1	8.5
11		....	1	....	1	7.5
12		....	....	1	1	6.5
13		....	....	....	....	6
14		....	....	....	....	6
15		....	1	....	1	5.5
16		....	....	....	....	5
17		....	....	....	....	5
18		....	....	1	1	4.5
19		....	....	2	2	3
20		....	....	....	....	2
21		....	....	....	....	2
22		....	....	....	....	2
23		....	....	....	....	2
24		....	....	....	....	2

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les hommes.

1 Age d'observation à partir de l'année incl.	jusqu'à l'année excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
			Age d'entrée: 9-10 ans.			
25		....	....	....	....	2
26		....	....	....	....	2
27		....	....	....	....	2
28		....	....	....	....	2
29		....	....	....	....	2
30		....	....	....	....	2
31		....	....	....	....	2
32		....	....	....	....	2
33		....	....	....	....	2
34		....	....	....	....	2
35		....	....	....	....	2
36		....	....	....	....	2
37		....	....	....	....	2
38		....	....	....	....	2
39		....	....	....	....	2
40		....	....	....	....	2
41		....	....	1	1	1.5
42		....	....	....	....	1
43-44		....	....	1	1	0.5
		....	3	6	9	107
			Age d'entrée 10-11 ans.			
10-11		....	....	....	....	1
11		....	....	....	....	2
12		....	....	....	....	2
13		....	....	....	....	2
14		....	....	....	....	2
15		....	1	....	1	1.5
16		....	....	....	....	1
17		....	....	....	....	1
18		....	....	....	....	1
19		....	....	....	....	1
20		....	....	....	....	1
21		....	....	....	....	1
22		....	....	....	....	1
23		....	....	....	....	1
24		....	....	....	....	1
25		....	....	....	....	1
26		....	....	....	....	1
27		....	....	....	....	1
28		....	....	....	....	1
29-30		....	1	....	1	0.5
		....	2	....	2	24
			Age d'entrée 11-12 ans.			
11-12		....	....	....	....	3.5
12		....	....	....	....	7
13		....	....	1	1	6.5
14		....	....	....	....	6
15		....	....	....	....	6
16		1	....	....	1	6
17		....	....	....	....	5
18		....	....	1	1	4.5

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les hommes.

1 Age d'observation à partir de l'année incl.	jusqu'à l'année excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 11-12 ans.						
19		....	....	....	....	4
20		....	....	....	....	4
21		....	....	1	1	3.5
22		....	....	1	1	2.5
23		....	....	....	....	2
24		....	....	....	....	2
25		....	....	....	....	2
26		....	....	....	....	2
27		....	....	....	....	2
28		1	....	....	1	2
29		....	....	....	....	1
30		....	....	....	....	1
31		....	....	....	....	1
32		....	....	....	....	1
33		....	....	....	....	1
34		....	....	....	....	1
35		....	....	....	....	1
36		....	....	....	....	1
37-38		....	....	1	1	0.5
		2	....	5	7	79
Age d'entrée: 12-13 ans.						
12-13		....	....	....	....	2.5
13		....	....	....	....	5
14		....	1	....	1	4.5
15		....	2	....	2	3
16		....	....	....	....	2
17		....	....	1	1	1.5
18		....	....	....	....	1
19		....	....	....	....	1
20		....	....	....	....	1
21		....	....	....	....	1
22		....	....	....	....	1
23		....	....	....	....	1
24		....	....	....	....	1
25		....	....	....	....	1
26		....	....	....	....	1
27		....	....	....	....	1
28		....	....	....	....	1
29		....	....	....	....	1
30		....	....	....	....	1
31		....	....	....	....	1
32		....	....	....	....	1
33		....	....	....	....	1
34-35		1	....	....	1	1
		1	3	1	5	35.5
Age d'entrée: 13-14 ans.						
13-14		....	....	....	....	2
14		....	....	....	....	4
15		....	1	....	1	3.5
16		....	....	1	1	2.5

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les hommes.

1 Age d'observation à partir de l'année jusqu'à l'année incl. excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 13-14 ans.					
17	....	....	....	....	2
18	....	....	....	....	2
19	....	....	....	....	2
20	....	....	....	....	2
21	....	....	....	....	2
22	....	....	....	....	2
23	....	....	....	....	2
24	....	....	....	....	2
25	....	....	....	....	2
26	....	....	....	....	2
27	....	....	....	....	2
28	....	....	....	....	2
29	....	....	....	....	2
30	....	....	1	1	1.5
31	....	....	....	....	1
32	....	....	....	....	1
33	....	....	....	....	1
34	....	....	....	....	1
35	....	....	....	....	1
36	....	....	....	....	1
37	....	....	....	....	1
38	....	....	....	....	1
39	....	....	....	....	1
40	....	....	....	....	1
41	....	....	....	....	1
42-43	....	....	1	1	0.5
	....	1	3	4	51
Age d'entrée: 14-15 ans.					
14-15	....	....	....	....	2.5
15	....	....	....	....	5
16	....	....	....	....	5
17	1	....	....	1	5
18	....	....	....	....	4
19	....	....	....	....	4
20	....	....	1	1	3.5
21	....	....	....	....	3
22	....	....	....	....	3
23	....	....	....	....	3
24	....	....	2	2	2
25	....	....	....	....	1
26	....	....	....	....	1
27	....	....	....	....	1
28	....	....	....	....	1
29	....	....	....	....	1
30	....	....	....	....	1
31	....	....	....	....	1
32	....	....	....	....	1
33	....	....	....	....	1
34	....	....	....	....	1
35	....	....	....	....	1
36	....	....	....	....	1
37	....	....	....	....	1
38	....	....	....	....	1

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les hommes.

1 Age d'observation à partir de l'année jusqu'à l'année incl. excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 14-15 ans.					
39	....	....	....	....	1
40	....	....	....	....	1
41	....	....	....	....	1
42	....	....	....	....	1
43	....	....	....	....	1
44	....	....	....	....	1
45	....	....	....	....	1
46	....	....	....	....	1
47	....	....	....	....	1
48	....	....	....	....	1
49	....	....	....	....	1
50	....	....	....	....	1
51-52	....	....	1	1	0.5
	1	....	4	5	66.5
Age d'entrée: 15-16 ans.					
15-16	....	....	....	....	1.5
16	....	....	....	....	3
17	....	....	....	....	3
18	....	1	....	1	2.5
19	....	....	....	....	2
20	....	....	....	....	2
21	....	....	....	....	2
22	....	....	....	....	2
23	....	....	....	....	2
24	....	....	....	....	2
25	1	....	....	1	2
26	....	....	....	....	1
27	....	....	....	....	1
28	....	....	....	....	1
29	....	....	....	....	1
30	....	....	....	....	1
31	....	....	....	....	1
32	....	....	....	....	1
33	....	....	....	....	1
34	....	....	....	....	1
35	....	....	....	....	1
36	....	....	....	....	1
37-38	....	....	1	1	0.5
	1	1	1	3	35.5
Age d'entrée: 16-17 ans.					
16-17	....	....	....	....	2
17	....	....	....	....	4
18	....	....	....	....	4
19	....	....	....	....	4
20	....	....	....	....	4
21	....	....	....	....	4
22	....	....	....	....	4
23	....	....	....	....	4
24	....	....	....	....	4
25	....	....	....	....	4
26	....	....	1	1	3.5

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les hommes.

1 Age d'observation à partir de l'année incl.	jusqu'à l'année excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 16-17 ans.						
27		....	....	....	....	3
28		....	....	....	....	3
29		....	....	....	....	3
30		....	....	....	....	3
31		....	....	....	....	3
32		....	....	....	....	3
33		....	....	....	....	3
34		....	....	....	....	3
35		....	....	....	....	3
36		....	....	1	1	2.5
37		....	....	....	....	2
38		....	....	....	....	2
39		....	1	....	1	1.5
40		....	....	....	....	1
41		....	....	....	....	1
42		....	....	....	....	1
43-44		1	....	....	1	1
		1	1	2	4	80.5
Age d'entrée: 17-18 ans.						
17-18		....	1	....	1	1
18		....	....	....	....	2
19		....	....	....	....	2
20		....	....	....	....	2
21		....	....	....	....	2
22		....	....	....	....	2
23		....	....	....	....	2
24		....	....	....	....	2
25		....	....	....	....	2
26		....	....	....	....	2
27		....	....	....	....	2
28		....	....	....	....	2
29		....	....	....	....	2
30		....	....	....	....	2
31		....	....	....	....	2
32		....	....	....	....	2
33		....	....	....	....	2
34		....	....	....	....	2
35		....	....	....	....	2
36		....	....	....	....	2
37		....	....	....	....	2
38		....	....	....	....	2
39		....	....	....	....	2
40		....	....	....	....	2
41		....	....	....	....	2
42		....	....	1	1	1.5
43-44		1	....	....	1	1
		1	1	1	3	51.5
Age d'entrée: 18-19 ans.						
18-19		....	....	....	....	8
19		....	5	....	5	13.5
20		....	2	....	2	10

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les hommes.

1 Age d'observation à partir de l'année jusqu'à l'année incl. excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 18-19 ans.					
21	....	1	....	1	8.5
22	....	....	....	....	8
23	....	2	1	3	6.5
24	....	1	1	2	4
25	....	1	....	1	2.5
26	....	....	....	....	2
27	1	....	....	1	2
28	....	....	....	....	1
29-30	....	....	1	1	0.5
	1	12	3	16	66.5
Age d'entrée: 19-20 ans.					
19-20	....	....	....	....	19
20	....	1	....	1	37.5
21	....	5	....	5	34.5
22	....	1	....	1	31.5
23	....	2	....	2	30
24	....	2	1	3	27.5
25	1	....	1	2	25.5
26	....	....	....	....	24
27	....	1	....	1	23.5
28	....	....	....	....	23
29	....	1	2	3	21.5
30	....	3	....	3	18.5
31	....	....	....	....	17
32	....	....	1	1	16.5
33	....	1	....	1	15.5
34	....	1	1	2	14
35	....	....	1	1	12.5
36	1	....	....	1	12
37	....	....	....	....	11
38	1	....	1	2	10.5
39	....	....	1	1	8.5
40	....	....	1	1	7.5
41	1	....	....	1	7
42	....	....	1	1	5.5
43	....	....	....	....	5
44	....	....	....	....	5
45	....	....	....	....	5
46	....	....	1	1	4.5
47	....	....	1	1	3.5
48	....	....	....	....	3
49	....	....	....	....	3
50	....	....	1	1	2.5
51	1	....	....	1	2
52	....	....	....	....	1
53	....	....	....	....	1
54	....	....	....	....	1
55	....	....	....	....	1
56	....	....	....	....	1
57	....	....	....	....	1
58-59	....	....	1	1	0.5
	5	18	15	38	493.5

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les hommes.

1 Age d'observation à partir de l'année jusqu'à l'année incl. excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 20-21 ans.					
20-21	....	....	....	....	37.5
21	....	2	....	2	74
22	....	10	....	10	68
23	1	6	....	7	60
24	....	2	....	2	55
25	1	4	....	5	52
26	....	3	1	4	47
27	1	1	....	2	44.5
28	....	1	1	2	42
29	....	3	1	4	39
30	....	....	....	....	37
31	....	....	3	3	35.5
32	....	2	1	3	32.5
33	1	....	1	2	30.5
34	1	2	2	5	27
35	....	....	4	4	22
36	....	1	2	3	18.5
37	....	....	2	2	16
38	1	....	2	3	14
39	....	....	2	2	11
40	....	....	2	2	9
41	....	....	1	1	7.5
42	....	....	....	....	7
43	....	....	1	1	6.5
44	....	....	1	1	5.5
45	....	....	....	....	5
46	....	....	1	1	4.5
47	....	....	....	....	4
48	....	....	1	1	3.5
49	....	....	....	....	3
50	....	....	....	....	3
51	....	....	....	....	3
52	....	....	1	1	2.5
53	....	....	....	....	2
54	....	....	....	....	2
55	....	....	....	....	2
56	....	....	....	....	2
57-58	....	....	2	2	1
	6	37	32	75	836
Age d'entrée: 21-22 ans.					
21-22	....	2	....	2	32.5
22	....	2	....	2	64
23	....	5	....	5	60.5
24	....	1	....	1	57.5
25	1	4	1	6	54.5
26	....	3	....	3	49.5
27	....	5	2	7	44.5
28	1	3	1	5	39
29	....	4	2	6	33
30	....	....	1	1	29.5
31	....	2	2	4	27
32	....	1	1	2	24
33	....	1	1	2	22
34	....	....	1	1	20.5

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les hommes.

1 Age d'observation à partir de l'année incl.	jusqu'à l'année excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 21-22 ans.						
35		....	....	1	1	19.5
36		....	....	2	2	18
37		....	....	....	....	17
38		1	....	2	3	16
39		....	....	1	1	13.5
40		....	....	2	2	12
41		....	....	1	1	10.5
42		....	....	....	....	10
43		....	....	....	....	10
44		....	....	1	1	9.5
45		....	....	2	2	8
46		....	....	....	....	7
47		....	1	....	1	6.5
48		....	....	3	3	4.5
49		....	....	1	1	2.5
50		....	....	....	....	2
51		....	....	....	....	2
52		....	....	....	....	2
53-54		....	....	2	2	1
		3	34	30	67	729.5
Age d'entrée: 22-23 ans.						
22-23		....	....	....	....	20.5
23		....	1	....	1	40.5
24		....	1	....	1	39.5
25		2	1	....	3	38.5
26		....	1	....	1	35.5
27		....	3	1	4	33
28		1	2	....	3	30
29		....	3	....	3	26.5
30		....	4	....	4	23
31		....	....	1	1	20.5
32		....	....	....	....	20
33		....	....	2	2	19
34		....	1	1	2	17
35		....	....	1	1	15.5
36		....	....	....	....	15
37		....	....	....	....	15
38		....	1	....	1	14.5
39		....	....	2	2	13
40		....	....	....	....	12
41		....	1	....	1	11.5
42		1	....	3	4	9.5
43		....	....	....	....	7
44		1	1	....	2	6.5
45		....	....	1	1	4.5
46		....	....	....	....	4
47		....	....	....	....	4
48		....	....	2	2	3
49		....	....	....	....	2

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les hommes.

1 Age d'observation à partir de l'année jusqu'à l'année incl. excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 22-23 ans.					
50	....	....	....	....	2
51	....	....	1	1	1.5
52	....	....	....	....	1
53	....	....	....	....	1
54-55	....	....	1	1	0.5
	5	20	16	41	506.5
Age d'entrée: 23-24 ans.					
23-24	....	....	1	1	13.5
24	....	2	....	2	26
25	....	3	1	4	23
26	....	1	....	1	20.5
27	....	1	....	1	19.5
28	....	1	....	1	18.5
29	1	1	....	2	17.5
30	....	....	....	....	16
31	....	1	....	1	15.5
32	....	....	....	....	15
33	....	....	....	....	15
34	....	1	....	1	14.5
35	....	1	....	1	13.5
36	....	....	....	....	13
37	1	1	....	2	12.5
38	....	....	....	....	11
39	....	....	....	....	11
40	....	....	....	....	11
41	....	....	....	....	11
42	....	....	....	....	11
43	....	....	1	1	10.5
44	....	....	....	....	10
45	....	....	1	1	9.5
46	....	....	1	1	8.5
47	....	....	1	1	7.5
48	....	....	....	....	7
49	....	....	2	2	6
50	....	....	....	....	5
51	....	....	1	1	4.5
52	....	....	1	1	3.5
53	....	....	....	....	3
54	....	....	1	1	2.5
55	....	....	....	....	2
56	....	....	....	....	2
57	....	....	....	....	2
58	....	....	....	....	2
59	....	....	....	....	2
60	....	....	1	1	1.5
61	....	....	....	....	1
62-63	....	....	1	1	0.5
	2	13	13	28	399
Age d'entrée: 24-25 ans.					
24-25	....	1	....	1	12
25	....	2	....	2	23

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les hommes.

1 Age d'observation à partir de l'année jusqu'à l'année incl. excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 24-25 ans.					
26	....	3	....	3	20.5
27	....	....	1	1	18.5
28	....	....	....	....	18
29	....	1	1	2	17
30	1	....	1	2	15.5
31	....	2	....	2	13
32	....	2	1	3	10.5
33	....	....	....	....	9
34	....	1	....	1	8.5
35	....	1	....	1	7.5
36	....	....	....	....	7
37	....	....	....	....	7
38	....	....	1	1	6.5
39	....	....	....	....	6
40	....	....	....	....	6
41	....	....	....	....	6
42	....	....	....	....	6
43	....	....	2	2	5
44	....	....	....	....	4
45	....	....	....	....	4
46	....	....	....	....	4
47	2	....	....	2	4
48	....	....	1	1	1.5
49	....	....	....	....	1
50	....	....	....	....	1
51	....	....	....	....	1
52	....	....	....	....	1
53	....	....	....	....	1
54	....	....	....	....	1
55-56	....	....	1	1	0.5
	3	13	9	25	246.5
Age d'entrée: 25-26 ans.					
25-26	....	1	....	1	10
26	....	2	1	3	18.5
27	....	1	....	1	16.5
28	....	....	1	1	15.5
29	....	....	....	....	15
30	....	....	....	....	15
31	....	1	....	1	14.5
32	1	1	....	2	13.5
33	1	....	....	1	12
34	....	1	....	1	10.5
35	....	1	....	1	9.5
36	1	1	....	2	8.5
37	....	....	....	....	7
38	....	....	....	....	7
39	....	1	....	1	6.5
40	....	....	....	....	6
41	....	1	....	1	5.5
42	....	....	1	1	4.5
43	....	....	....	....	4
44	....	....	....	....	4

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les hommes.

1 Age d'observation à partir de l'année jusqu'à l'année incl. excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 25-26 ans.					
45	....	....	....	....	4
46	....	....	....	....	4
47	....	....	....	....	4
48	....	....	2	2	3
49	....	....	1	1	1.5
50	....	....	....	....	1
51-52	....	....	1	1	0.5
	3	11	7	21	221.5
Age d'entrée: 26-27 ans.					
26-27	....	....	....	....	8.5
27	....	1	....	1	16.5
28	....	1	....	1	15.5
29	....	....	1	1	14.5
30	1	....	....	1	14
31	....	2	....	2	12
32	....	....	..	....	11
33	....	....	..	....	11
34	....	1	....	1	10.5
35	....	....	1	1	9.5
36	....	....	....	....	9
37	....	....	....	....	9
38	....	....	....	....	9
39	....	....	....	....	9
40	....	....	1	1	8.5
41	....	....	1	1	7.5
42	....	....	....	....	7
43	....	....	2	2	6
44	....	....	....	....	5
45	....	....	....	....	5
46	1	....	....	1	5
47	....	....	....	....	4
48	....	....	....	....	4
49	....	....	....	....	4
50	....	....	1	1	3.5
51	....	....	....	....	3
52	....	....	....	....	3
53	....	....	....	....	3
54	....	....	....	....	3
55	....	....	....	....	3
56	....	....	1	1	2.5
57	....	....	1	1	1.5
58	....	....	....	....	1
59	....	....	....	....	1
60	....	....	....	....	1
61	....	....	....	....	1
62	....	....	....	....	1
63	....	....	....	....	1
64	....	....	....	....	1
65	....	....	....	....	1
66-67	....	....	1	1	0.5
	2	5	10	17	246

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les hommes.

1 Age d'observation à partir de l'année incl.	jusqu'à l'année excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 27-28 ans.						
27-28		....	1	....	1	9.5
28		....	3	2	5	16.5
29		....	....	....	....	14
30		....	1	....	1	13.5
31		....	1	1	2	12
32		....	1	....	1	10.5
33		....	....	....	....	10
34		....	1	....	1	9.5
35		....	....	1	1	8.5
36		....	....	....	....	8
37		....	....	1	1	7.5
38		....	....	....	....	7
39		....	....	1	1	6.5
40		....	....	....	....	6
41		....	....	....	....	6
42		....	....	1	1	5.5
43		....	....	....	....	5
44		....	....	....	....	5
45		....	1	....	1	4.5
46		....	....	....	....	4
47		1	....	....	1	4
48		1	....	....	1	3
49		....	....	....	....	2
50		....	....	....	....	2
51		....	....	....	....	2
52		....	....	....	....	2
53		....	....	....	....	2
54		....	....	....	....	2
55		....	....	....	....	2
56		....	....	....	....	2
57		....	....	....	....	2
58		....	....	1	1	1.5
59		....	....	....	....	1
60		....	....	....	....	1
61		....	....	....	....	1
62		....	....	....	....	1
63-64		....	....	1	1	0.5
		2	9	9	20	200
Age d'entrée: 28-29 ans.						
28-29		....	2	1	3	7
29		....	1	....	1	13.5
30		....	3	1	4	11
31		....	2	....	2	8
32		....	2	1	3	5.5
33		....	....	....	....	4
34		....	....	....	....	4
35		....	....	....	....	4
36		....	....	....	....	4
37		....	....	1	1	3.5
38		....	....	....	....	3
39		....	....	....	....	3
40		....	....	....	....	3
41		....	....	....	....	3

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les hommes.

1 Age d'observation à partir de l'année incl.	jusqu'à l'année excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 28-29 ans.						
42		....	....	....	....	3
43		....	....	....	....	3
44		....	....	....	....	3
45		....	....	....	....	3
46		....	....	....	....	3
47		....	....	....	....	3
48		....	....	....	....	3
49		....	....	....	....	3
50		....	....	....	....	3
51		....	....	1	1	2.5
52		....	....	....	....	2
53		....	....	....	....	2
54-55		....	....	2	2	1
			10	7	17	111
Age d'entrée: 29-30 ans.						
29-30		....	1	....	1	7
30		....	2	....	2	13
31		....	....	....	....	12
32		....	....	1	1	11.5
33		....	....	....	....	11
34		....	2	....	2	10
35		....	....	....	....	9
36		....	....	....	....	9
37		....	....	....	....	9
38		....	....	....	....	9
39		....	....	....	....	9
40		....	1	....	1	8.5
41		....	....	....	....	8
42		....	....	....	....	8
43		....	....	1	1	7.5
44		....	....	....	....	7
45		....	....	....	....	7
46		....	....	....	....	7
47		....	....	1	1	6.5
48		....	....	....	....	6
49		....	....	....	....	6
50		1	....	1	2	5.5
51		....	....	....	....	4
52		....	....	....	....	4
53		....	....	1	1	3.5
54		....	....	....	....	3
55		....	....	....	....	3
56		....	....	....	....	3
57		....	....	....	....	3
58		....	....	....	....	3
59		....	....	....	....	3
60		....	....	....	....	3
61		....	....	1	1	2.5
62		1	....	....	1	2
63		....	....	....	....	1
64		....	....	....	....	1
65-66		1	....	....	1	1
		3	6	6	15	226.5

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les hommes.

1 Age d'observation à partir de l'année incl.	jusqu'à l'année excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 30-31 ans.						
30	31	....	....	....	....	6
31	32	....	1	....	1	11.5
32	33	....	....	....	....	11
33	34	....	....	....	....	11
34	35	....	....	3	3	9.5
35	36	....	1	1	2	7
36	37	....	....	....	....	6
37	38	....	....	....	....	6
38	39	....	....	....	....	6
39	40	....	....	....	....	6
40	41	....	....	....	....	6
41	42	....	....	....	....	6
42	43	....	....	....	....	6
43	44	....	....	....	....	6
44	45	....	....	....	....	6
45	46	....	....	1	1	5.5
46	47	....	1	....	1	4.5
47	48	....	....	1	1	3.5
48	49	....	....	....	....	3
49	50	....	....	....	....	3
50	51	....	....	....	....	3
51	52	....	....	....	....	3
52	53	....	....	....	....	3
53	54	....	....	....	....	3
54	55	....	....	1	1	2.5
55	56	....	....	....	....	2
56	57	....	....	....	....	2
57	58	....	....	....	....	2
58	59	....	....	....	....	2
59	60	....	....	....	....	2
60	61	....	....	....	....	2
61	62	....	....	1	1	1.5
62	63	....	....	1	1	0.5
		....	3	9	12	158
Age d'entrée: 31-32 ans.						
31	32	....	1	....	1	10
32	33	....	2	....	2	19
33	34	....	1	1	2	17
34	35	....	....	....	....	16
35	36	....	3	1	4	14
36	37	....	....	....	....	12
37	38	....	1	....	1	11.5
38	39	....	2	....	2	10
39	40	1	1	1	3	8
40	41	....	1	....	1	5.5
41	42	....	....	....	....	5
42	43	....	....	....	....	5
43	44	....	....	....	....	5
44	45	....	....	1	1	4.5
45	46	....	....	1	1	3.5
46	47	....	1	....	1	2.5
47	48	....	....	....	....	2
48	49	....	....	....	....	2

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les hommes.

1 Age d'observation à partir de l'année incl.	jusqu'à l'année excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 31-32 ans.						
49		....	....	....	....	2
50		....	....	....	....	2
51		....	....	....	....	2
52		....	....	....	....	2
53		....	....	....	....	2
54		....	....	....	....	2
55		....	....	....	....	2
56		....	....	....	....	2
57		....	....	....	....	2
58		....	....	....	....	2
59		....	....	....	....	2
60		....	....	....	....	2
61		....	....	....	....	2
62		....	....	1	1	1.5
63-64		....	....	1	1	0.5
		1	13	7	21	180.5
Age d'entrée: 32-33 ans.						
32-33		....	1	....	1	5.5
33		....	....	....	....	11
34		....	....	....	....	11
35		....	1	....	1	10.5
36		....	....	....	....	10
37		....	....	1	1	9.5
38		....	....	....	....	9
39		....	....	1	1	8.5
40		....	....	....	....	8
41		....	1	....	1	7.5
42		....	1	....	1	6.5
43		....	....	....	....	6
44		....	....	....	....	6
45		1	....	....	1	6
46		....	....	....	....	5
47		....	....	....	....	5
48		....	....	....	....	5
49		....	....	1	1	4.5
50		....	....	....	....	4
51		....	....	....	....	4
52		....	....	1	1	3.5
53		....	....	....	....	3
54		....	....	1	1	2.5
55-56		1	1	....	2	1.5
		2	5	5	12	153
Age d'entrée: 33-34 ans.						
33-34		....	1	1	2	5.5
34		....	....	....	....	11
35		....	....	....	....	11
36		....	....	....	....	11
37		....	1	1	2	10
38		....	....	....	....	9
39		....	....	....	....	9
40		....	....	....	....	9

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les hommes.

1 Age d'observation à partir de l'année incl.	jusqu'à l'année excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 33-34 ans.						
41		....	....	....	....	9
42		....	2	....	2	8
43		....	....	....	....	7
44		....	....	....	....	7
45		....	....	....	....	7
46		....	....	....	....	7
47		1	....	....	1	7
48		....	....	1	1	5.5
49		....	....	....	....	5
50		....	....	....	....	5
51		1	....	....	1	5
52		....	....	....	....	4
53		....	....	1	1	3.5
54		....	....	....	....	3
55		....	....	....	....	3
56		....	....	....	....	3
57		....	....	....	....	3
58		....	....	....	....	3
59		....	....	1	1	2.5
60		....	....	....	....	2
61		....	....	....	....	2
62		....	....	....	....	2
63		1	....	....	1	2
64		....	....	....	....	1
65-66		....	....	1	1	0.5
		3	4	6	13	182.5
Age d'entrée: 34-35 ans.						
34-35		....	2	....	2	6.5
35		....	....	....	....	13
36		....	....	....	....	13
37		1	1	....	2	12.5
38		1	....	1	2	10.5
39		....	....	1	1	8.5
40		....	....	....	....	8
41		....	....	....	....	8
42		....	....	....	....	8
43		....	....	....	....	8
44		....	....	....	....	8
45		....	....	....	....	8
46		....	....	....	....	8
47		....	1	....	1	7.5
48		....	....	....	....	7
49		....	....	....	....	7
50		1	....	1	2	6.5
51		....	....	....	....	5
52		....	....	....	....	5
53		....	....	....	....	5
54		....	....	....	....	5
55		....	....	1	1	4.5
56		1	....	....	1	4
57		....	....	....	....	3

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les hommes.

1 Age d'observation à partir de l'année jusqu'à l'année incl. excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 34-35 ans.					
58	....	....	....	....	3
59	....	....	....	....	3
60	....	....	....	....	3
61	....	....	....	....	3
62	....	....	....	....	3
63	....	....	....	....	3
64	1	....	....	1	3
65	....	....	....	....	2
66	....	....	1	1	1.5
67	....	....	....	....	1
68-69	1	....	....	1	1
	6	4	5	15	206
Age d'entrée: 35-36 ans.					
35-36	....	1	....	1	10
36	....	1	3	4	18
37	....	....	....	....	16
38	....	....	....	....	16
39	....	....	2	2	15
40	1	1	....	2	13.5
41	....	....	....	....	12
42	....	....	1	1	11.5
43	....	1	....	1	10.5
44	....	1	....	1	9.5
45	....	1	1	2	8
46	....	....	....	....	7
47	....	....	....	....	7
48	....	1	....	1	6.5
49	....	....	....	....	6
50	....	....	....	....	6
51	1	....	....	1	6
52	....	....	....	....	5
53	....	....	....	....	5
54	....	....	....	....	5
55	....	....	....	....	5
56	....	....	....	....	5
57	....	....	....	....	5
58	....	....	....	....	5
59	....	....	1	1	4.5
60	....	....	....	....	4
61	....	....	....	....	4
62	....	....	....	....	4
63	....	....	....	....	4
64	....	....	....	....	4
65	....	....	....	....	4
66	....	....	....	....	4
67	....	....	....	....	4
68	....	....	1	1	3.5
69	....	1	....	1	2.5
70	....	....	....	....	2
71-72	....	....	2	2	1
	2	8	11	21	259

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les hommes.

1 Age d'observation à partir de l'année jusqu'à l'année incl. excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 36-37 ans.					
36-37	....	1	1	2	7.5
37	....	1	3	4	13
38	....	....	1	1	10.5
39	....	1	....	1	9.5
40	....	1	....	1	8.5
41	....	....	....	....	8
42	1	....	....	1	8
43	....	....	....	....	7
44	....	....	1	1	6.5
45	....	....	....	....	6
46	....	....	....	....	6
47	....	....	....	....	6
48	....	....	....	....	6
49	....	....	....	....	6
50	....	....	1	1	5.5
51	....	....	1	1	4.5
52	....	....	....	....	4
53	....	....	....	....	4
54	1	....	....	1	4
55	....	....	....	....	3
56	....	....	1	1	2.5
57	1	....	....	1	2
58	....	....	....	....	1
59	....	....	....	....	1
60	....	....	....	....	1
61	....	....	....	....	1
62	....	....	....	....	1
63	....	....	....	....	1
64	....	....	....	....	1
65	....	....	....	....	1
66	....	....	....	....	1
67	....	....	....	....	1
68-69	....	....	1	1	0.5
	3	4	10	17	148.5
Age d'entrée: 37-38 ans.					
37-38	....	1	....	1	8.5
38	....	2	1	3	15.5
39	1	2	....	3	13
40	1	....	....	1	11
41	....	....	....	....	10
42	....	1	....	1	9.5
43	....	....	....	....	9
44	....	....	....	....	9
45	....	....	1	1	8.5
46	....	....	....	....	8
47	....	....	....	....	8
48	....	....	1	1	7.5
49	1	....	....	1	7
50	....	....	....	....	6
51	1	....	....	1	6
52	....	....	....	....	5
53	1	....	....	1	5
54	....	....	....	....	4

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les hommes.

1 Age d'observation à partir de l'année jusqu'à l'année incl. excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 37-38 ans.					
55	....	....	....	....	4
56	....	....	....	....	4
57	....	....	....	....	4
58	....	....	1	1	3.5
59	....	....	....	....	3
60	....	....	....	....	3
61	....	....	....	....	3
62	....	....	....	....	3
63	....	....	....	....	3
64	1	....	....	1	3
65	....	....	....	....	2
66	....	....	....	....	2
67	....	....	....	....	2
68	....	....	1	1	1.5
69-70	....	....	1	1	0.5
	6	6	6	18	192
Age d'entrée: 38-39 ans.					
38-39	1	1	1	3	7.5
39	....	2	....	2	13
40	....	....	2	2	11
41	....	....	....	....	10
42	....	2	....	2	9
43	....	....	....	....	8
44	....	....	1	1	7.5
45	....	....	....	....	7
46	....	....	....	....	7
47	....	1	....	1	6.5
48	....	....	....	....	6
49	....	....	....	....	6
50	....	....	1	1	5.5
51	....	....	....	....	5
52	....	....	....	....	5
53	....	....	....	....	5
54	....	1	....	1	4.5
55	....	....	1	1	3.5
56	....	....	....	....	3
57	....	....	1	1	2.5
58	....	....	1	1	1.5
59-60	....	....	1	1	0.5
	1	7	9	17	134.5
Age d'entrée: 39-40 ans.					
39-40	....	....	....	....	13
40	....	2	1	3	24.5
41	....	2	3	5	20.5
42	1	1	....	2	17.5
43	....	....	1	1	15.5
44	....	....	....	....	15
45	....	....	....	....	15
46	....	....	1	1	14.5
47	....	....	1	1	13.5
48	1	....	1	2	12.5

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les hommes.

1 Age d'observation à partir de l'année incl.	jusqu'à l'année excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
			Age d'entrée: 39-40 ans.			
49		....	....	1	1	10.5
50		....	....	1	1	9.5
51		....	....	2	2	8
52		....	....	....	....	7
53		....	....	1	1	6.5
54		....	....	....	....	6
55		....	....	1	1	5.5
56		....	....	....	....	5
57		....	....	....	....	5
58		....	....	1	1	4.5
59		1	....	....	1	4
60		....	....	....	....	3
61		....	....	....	....	3
62		....	....	....	....	3
63		....	....	....	....	3
64		....	....	....	....	3
65		....	....	....	....	3
66		....	....	....	....	3
67		....	....	1	1	2.5
68		....	....	....	....	2
69		....	....	....	....	2
70		....	....	....	....	2
71		....	....	1	1	1.5
72		....	....	....	....	1
73		....	....	....	....	1
74		....	....	....	....	1
75		....	....	....	....	1
76		....	....	....	....	1
77		....	....	....	....	1
78		....	....	....	....	1
79-80		1	....	....	1	1
		4	5	17	26	272
			Age d'entrée: 40-41 ans.			
40-41		....	....	1	1	15
41		....	1	3	4	28
42		....	5	....	5	23.5
43		....	1	....	1	20.5
44		....	2	....	2	19
45		....	1	1	2	17
46		....	1	....	1	15.5
47		....	....	1	1	14.5
48		1	....	1	2	13.5
49		....	....	1	1	11.5
50		....	....	....	....	11
51		....	....	1	1	10.5
52		....	....	....	....	10
53		....	....	....	....	10
54		....	....	1	1	9.5
55		1	....	....	1	9
56		....	....	1	1	7.5
57		1	....	....	1	7
58		1	....	....	1	6
59		....	....	....	....	5

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les hommes.

1 Age d'observation à partir de l'année incl.	jusqu'à l'année excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
			Age d'entrée: 40-41 ans.			
60		1	....	....	1	5
61		....	....	....	....	4
62		....	....	....	....	4
63		....	....	....	....	4
64		....	....	....	....	4
65		....	....	....	....	4
66		....	....	....	....	4
67		....	....	1	1	3.5
68		....	....	....	....	3
69		....	....	....	....	3
70		....	....	....	....	3
71		....	....	....	....	3
72		....	....	....	....	3
73		....	....	....	....	3
74		....	....	....	....	3
75		....	....	1	1	2.5
76		....	....	1	1	1.5
77		....	....	....	....	1
78		....	....	....	....	1
79		....	....	....	....	1
80-81		....	....	1	1	0.5
		5	11	15	31	324.5
			Age d'entrée: 41-42 ans.			
41-42		....	....	1	1	6
42		....	1	2	3	10.5
43		....	....	1	1	8.5
44		....	1	1	2	7
45		....	....	....	....	6
46		....	....	1	1	5.5
47		....	....	....	....	5
48		....	....	....	....	5
49		....	....	....	....	5
50		....	1	....	1	4.5
51		....	....	....	....	4
52		....	....	....	....	4
53		....	....	1	1	3.5
54		....	....	....	....	3
55		....	....	....	....	3
56		....	....	1	1	2.5
57		....	....	1	1	1.5
58		....	....	....	....	1
59		....	....	....	....	1
60		....	....	....	....	1
61		....	....	....	....	1
62		....	....	....	....	1
63		....	....	....	....	1
64		....	....	....	....	1
65		....	....	....	....	1
66-67		1	....	....	1	1
		1	3	9	13	93.5

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les hommes.

1 Age d'observation à partir de l'année jusqu'à l'année incl. excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 42-43 ans.					
42-43	....	1	....	1	12
43	....	3	2	5	21.5
44	....	1	1	2	18
45	....	1	2	3	15.5
46	....	2	1	3	12.5
47	....	....	....	....	11
48	....	....	....	....	11
49	1	....	....	1	11
50	....	....	....	....	10
51	....	....	....	....	10
52	....	....	2	2	9
53	....	....	....	....	8
54	....	....	1	1	7.5
55	....	....	....	....	7
56	....	....	....	....	7
57	....	....	1	1	6.5
58	....	....	1	1	5.5
59	....	....	....	....	5
60	....	....	....	....	5
61	....	....	1	1	4.5
62	....	....	....	....	4
63	....	....	1	1	3.5
64	....	....	1	1	2.5
65	....	....	....	....	2
66	....	....	....	....	2
67	....	....	....	....	2
68	....	....	1	1	1.5
69	....	....	....	....	1
70	....	....	....	....	1
71	....	....	....	....	1
72	....	....	....	....	1
73	....	....	....	....	1
74	....	....	....	....	1
75	....	....	....	....	1
76	....	....	....	....	1
77	....	....	....	....	1
78	....	....	....	....	1
79	....	....	....	....	1
80	....	....	....	....	1
81-82	....	....	1	1	0.5
	1	8	16	25	227.5
Age d'entrée: 43-44 ans.					
43-44	....	....	1	1	10.5
44-45	1	2	1	4	19.5
45	1	1	1	3	16
46	....	....	....	....	14
47	....	....	1	1	13.5
48	....	....	....	....	13
49	....	....	1	1	12.5
50	....	....	....	....	12
51	....	....	1	1	11.5
52	....	....	2	2	10
53	....	....	1	1	8.5

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les hommes.

1 Age d'observation à partir de l'année jusqu'à l'année incl. excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 43-44 ans.					
54	....	....	....	....	8
55	....	....	1	1	7.5
56	....	....	....	....	7
57	....	1	....	1	6.5
58	....	....	....	....	6
59	1	1	....	2	5.5
60	....	....	1	1	3.5
61	....	....	....	....	3
62	....	....	....	....	3
63	....	....	....	....	3
64	....	....	....	....	3
65	....	....	....	....	3
66	....	....	....	....	3
67	....	....	....	....	3
68	....	....	....	....	3
69	....	....	....	....	3
70	....	....	....	....	3
71	....	....	....	....	3
72	1	....	....	1	3
73	....	....	....	....	2
74	....	....	....	....	2
75	....	....	1	1	1.5
76	....	....	....	....	1
77	....	....	....	....	1
78-79	1	....	....	1	1
	5	5	12	22	229.5
Age d'entrée: 44-45 ans.					
44-45	....	....	....	....	7.5
45	....	2	....	2	14
46	....	....	1	1	12.5
47	....	....	....	....	12
48	....	....	....	....	12
49	1	....	1	2	11.5
50	1	....	....	1	10
51	....	1	1	2	8
52	....	....	....	....	7
53	....	....	1	1	6.5
54	....	....	1	1	5.5
55	....	....	....	....	5
56	....	....	....	....	5
57	....	....	....	....	5
58	....	....	....	....	5
59	....	....	....	....	5
60	....	....	....	....	5
61	1	....	....	1	5
62	....	....	....	....	4
63	....	....	....	....	4
64	....	....	1	1	3.5
65	....	....	1	1	2.5
66	....	....	....	....	2
67	....	....	....	....	2
68	....	....	....	....	2
69	....	....	....	....	2

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les hommes.

1 Age d'observation à partir de l'année jusqu'à l'année incl. excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 44-45 ans.					
70	....	....	....	....	2
71-72	1	....	1	2	1.5
	4	3	8	15	167
Age d'entrée: 45-46 ans.					
45-46	....	3	2	5	10.5
46	1	2	....	3	20
47	....	....	2	2	17
48	....	....	1	1	15.5
49	....	....	1	1	14.5
50	....	....	1	1	13.5
51	....	....	....	....	13
52	....	....	1	1	12.5
53	....	....	....	....	12
54	1	....	....	1	12
55	....	....	1	1	10.5
56	....	....	....	....	10
57	....	....	....	....	10
58	1	....	....	1	10
59	....	....	....	....	9
60	....	1	1	2	8
61	....	....	1	1	6.5
62	....	....	....	....	6
63	1	....	1	2	5.5
64	....	....	....	....	4
65	1	....	....	1	4
66	....	....	....	....	3
67	....	....	....	....	3
68	....	....	....	....	3
69	....	....	....	....	3
70	....	....	....	....	3
71	....	....	....	....	3
72	....	....	....	....	3
73	1	....	....	1	3
74	....	....	....	....	2
75	....	....	....	....	2
76	....	....	....	....	2
77	....	....	1	1	1.5
78-79	1	....	....	1	1
	7	6	13	26	256.5
Age d'entrée: 46-47 ans.					
46-47	....	....	....	....	11
47	1	2	1	4	20.5
48	....	....	....	....	18
49	....	....	....	....	18
50	....	....	1	1	17.5
51	....	2	....	2	16
52	1	....	....	1	15
53	....	....	1	1	13.5
54	....	....	1	1	12.5
55	1	....	1	2	11.5
56	....	1	....	1	9.5

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les hommes.

1 Age d'observation à partir de l'année incl.	jusqu'à l'année excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 46-47 ans.						
57		....	1	....	1	8.5
58		....	....	1	1	7.5
59		....	....	....	....	7
60		1	1	1	3	6
61		....	....	....	....	4
62		....	....	....	....	4
63		....	....	1	1	3.5
64		....	1	....	1	2.5
65		....	....	....	....	2
66		....	....	....	....	2
67		....	....	....	....	2
68		....	....	....	....	2
69		....	....	....	....	2
70		....	....	....	....	2
71		....	....	1	1	1.5
72		....	....	....	....	1
73		....	....	....	....	1
74		....	....	....	....	1
75		....	....	....	....	1
76		....	....	....	....	1
77-78		1	....	....	1	1
		5	8	9	22	225.5
Age d'entrée: 47-48 ans.						
47-48		....	....	....	....	12.5
48		....	3	2	5	22.5
49		....	1	....	1	19.5
50		....	1	1	2	18
51		....	....	....	....	17
52		....	1	....	1	16.5
53		....	....	1	1	15.5
54		....	....	....	....	15
55		....	1	1	2	14
56		....	....	1	1	12.5
57		....	1	2	3	10.5
58		1	....	....	1	9
59		....	....	2	2	7
60		....	....	....	....	6
61		....	1	....	1	5.5
62		....	....	....	....	5
63		....	....	....	....	5
64		....	....	....	....	5
65		....	....	1	1	4.5
66		....	....	....	....	4
67		....	....	....	....	4
68		....	....	....	....	4
69		....	....	....	....	4
70		....	....	....	....	4
71		....	....	....	....	4
72		....	....	....	....	4
73		1	1	....	2	3.5
74		....	....	....	....	2
75		....	....	....	....	2
76		....	....	....	....	2

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les hommes.

1 Age d'observation à partir de l'année jusqu'à l'année incl. excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 47-48 ans.					
77	....	....	....	....	2
78	....	....	....	....	2
79	....	....	1	1	1.5
80-81	1	....	....	1	1
	3	10	12	25	264.5
Age d'entrée: 48-49 ans.					
48-49	....	....	....	....	12.5
49	....	6	2	8	21
50	2	1	1	4	16
51	....	....	2	2	12
52	....	....	....	....	11
53	....	1	....	1	10.5
54	....	....	1	1	9.5
55	1	1	1	3	8
56	....	....	....	....	6
57	....	....	....	....	6
58	....	....	1	1	5.5
59	....	....	....	....	5
60	....	....	....	....	5
61	....	....	....	....	5
62	....	....	....	....	5
63	....	....	....	....	5
64	....	....	....	....	5
65	....	....	1	1	4.5
66	....	....	....	....	4
67	....	....	1	1	3.5
68	....	....	1	1	2.5
69	....	....	....	....	2
70	....	1	....	1	1.5
71	....	....	....	....	1
72	....	....	....	....	1
73	....	....	....	....	1
74	....	....	....	....	1
75-76	1	....	....	1	1
	4	10	11	25	171
Age d'entrée: 49-50 ans.					
49-50	....	....	2	2	15
50	....	4	2	6	27
51	....	2	....	2	23
52	....	....	5	5	19.5
53	1	2	....	3	16
54	....	....	....	....	14
55	....	....	....	....	14
56	....	....	1	1	13.5
57	....	....	....	....	13
58	....	....	....	....	13
59	1	....	....	1	13
60	....	....	....	....	12
61	....	....	....	....	12
62	2	....	....	2	12
63	....	....	....	....	10

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les hommes.

1 Age d'observation à partir de l'année incl.	jusqu'à l'année excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
			Age d'entrée: 49-50 ans.			
64		....	....	1	1	9.5
65		2	....	1	3	8.5
66		1	....	1	2	5.5
67		....	....	....	....	4
68		....	....	....	....	4
69		....	....	1	1	3.5
70		....	....	....	....	3
71		....	....	....	....	3
72		....	....	....	....	3
73		....	....	....	....	3
74		1	....	....	1	3
75		....	....	....	....	2
76		....	....	....	....	2
77		....	....	....	....	2
78		....	....	1	1	1.5
79-80		....	....	1	1	0.5
		8	8	16	32	285
			Age d'entrée: 50-51 ans.			
50-51		....	....	1	1	19.5
51		....	3	1	4	37
52		1	2	2	5	33
53		....	1	1	2	29
54		4	....	2	6	27
55		1	2	1	4	20.5
56		....	2	2	4	16
57		....	....	....	....	14
58		....	....	1	1	13.5
59		1	....	1	2	12.5
60		....	1	2	3	9.5
61		1	....	....	1	8
62		1	....	....	1	7
63		....	....	....	....	6
64		1	....	....	1	6
65		....	....	....	....	5
66		....	....	1	1	4.5
67		1	....	....	1	4
68		....	....	....	....	3
69		....	....	....	....	3
70		....	....	1	1	2.5
71		....	....	....	....	2
72		1	....	....	1	2
73		....	....	....	....	1
74-75		....	....	1	1	0.5
		12	11	17	40	286
			Age d'entrée: 51-52 ans.			
51-52		1	....	....	1	14
52		....	4	1	5	24.5
53		....	2	1	3	20.5
54		....	1	....	1	18.5
55		....	....	2	2	17

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les hommes.

1 Age d'observation à partir de l'année incl.	jusqu'à l'année excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
			Age d'entrée: 51-52 ans.			
56		1	1	....	2	15.5
57		1	....	....	1	14
58		....	....	....	....	13
59		....	....	2	2	12
60		1	1	....	2	10.5
61		....	....	1	1	8.5
62		....	....	1	1	7.5
63		....	....	1	1	6.5
64		....	....	1	1	5.5
65		....	....	....	....	5
66		....	....	....	....	5
67		....	....	....	....	5
68		1	....	....	1	5
69		....	....	....	....	4
70		1	....	1	2	3.5
71		....	....	1	1	1.5
72		....	....	....	....	1
73		....	....	....	....	1
74-75		1	....	....	1	1
		7	9	12	28	219.5
			Age d'entrée: 52-53 ans.			
52-53		....	....	1	1	14.5
53		....	5	1	6	26
54		....	2	....	2	22
55		1	1	2	4	19.5
56		1	....	3	4	15.5
57		....	....	2	2	12
58		....	....	....	....	11
59		....	....	....	....	11
60		....	....	....	....	11
61		....	....	....	....	11
62		....	....	1	1	10.5
63		....	....	....	....	10
64		....	....	....	....	10
65		....	....	....	....	10
66		....	1	....	1	9.5
67		1	1	1	3	8
68		....	....	....	....	6
69		2	....	....	2	6
70		....	....	....	....	4
71		....	....	....	....	4
72		....	....	....	....	4
73		1	....	....	1	4
74		....	....	....	....	3
75		....	....	....	....	3
76		....	....	1	1	2.5
77		....	....	....	....	2
78		....	....	....	....	2
79		....	....	....	....	2
80		....	....	....	....	2

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les hommes.

1 Age d'observation à partir de l'année jusqu'à l'année incl. excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 52-53 ans.					
81	1	....	....	1	2
82	....	....	....	....	1
83-84	1	....	....	1	1
	8	10	12	30	260
Age d'entrée: 53-54 ans.					
53-54	1	....	4	5	16
54	1	3	2	6	28.5
55	1	....	....	1	25
56	1	....	2	3	23
57	1	....	1	2	20.5
58	....	1	....	1	18.5
59	3	....	....	3	18
60	....	....	2	2	14
61	....	1	2	3	11.5
62	1	....	....	1	10
63	....	....	2	2	8
64	....	....	2	2	6
65	....	1	1	2	4
66	....	....	....	....	3
67	....	....	....	....	3
68	....	....	....	....	3
69	....	....	....	....	3
70	....	....	....	....	3
71	1	1	....	2	2.5
72	....	....	....	....	1
73	....	....	....	....	1
74	....	....	....	....	1
75	....	....	....	....	1
76	....	....	....	....	1
77-78	1	....	....	1	1
	11	7	18	36	226.5
Age d'entrée: 54-55 ans.					
54-55	....	....	....	....	18.5
55	1	5	2	8	33.5
56	....	2	4	6	26
57	....	1	1	2	22
58	....	....	1	1	20.5
59	2	1	....	3	19.5
60	1	....	....	1	17
61	....	2	2	4	14
62	....	....	1	1	11.5
63	....	....	....	....	11
64	....	....	1	1	10.5
65	....	....	3	3	8.5
66	....	....	1	1	6.5
67	....	....	1	1	5.5
68	1	....	....	1	5
69	....	....	....	....	4
70	2	....	....	2	4
71	1	....	....	1	2

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les hommes.

1 Age d'observation à partir de l'année incl.	jusqu'à l'année excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 54-55 ans.						
72		....	....	....	....	1
73-74		1	....	....	1	1
		9	11	17	37	241.5
Age d'entrée: 55-56 ans						
55-56		1	....	....	1	23
56		1	4	3	8	41.5
57		1	2	....	3	36
58		2	4	2	8	31
59		....	1	1	2	25
60		....	1	2	3	22.5
61		....	1	2	3	19.5
62		....	....	....	....	18
63		2	1	2	5	16.5
64		....	....	2	2	12
65		1	....	....	1	11
66		....	....	....	....	10
67		....	....	1	1	9.5
68		....	....	2	2	8
69		....	....	1	1	6.5
70		....	....	....	....	6
71		1	....	1	2	5.5
72		....	....	....	....	4
73		1	....	....	1	4
74		2	....	....	2	3
75		....	....	....	....	1
76		....	....	....	....	1
77		....	....	....	....	1
78-79		1	....	....	1	1
		13	14	19	46	316.5
Age d'entrée: 56-57 ans.						
56-57		....	....	1	1	24
57		1	5	3	9	44
58		....	6	....	6	36
59		2	....	4	6	31
60		2	1	1	4	26
61		....	....	1	1	22.5
62		1	....	2	3	21
63		3	....	....	3	19
64		2	....	2	4	15
65		1	....	1	2	11.5
66		2	....	....	2	10
67		....	....	....	....	8
68		....	....	1	1	7.5
69		1	....	....	1	7
70		1	....	....	1	6
71		....	....	....	....	5
72		2	....	....	2	5
73		1	....	....	1	3
74		....	....	....	....	2

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les hommes.

1 Age d'observation à partir de l'année jusqu'à l'année incl. excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 56-57 ans.					
75	....	....	1	1	1.5
76-77	....	....	1	1	0.5
	19	12	18	49	305.5
Age d'entrée: 57-58 ans.					
57-58	2	....	2	4	26.5
58	....	3	2	5	48.5
59	1	9	3	13	40
60	1	....	2	3	32
61	....	1	4	5	27.5
62	2	2	2	6	23
63	....	....	1	1	18.5
64	2	....	....	2	18
65	2	....	2	4	15
66	....	....	1	1	11.5
67	1	....	....	1	11
68	....	....	1	1	9.5
69	1	....	....	1	9
70	....	....	1	1	7.5
71	....	....	1	1	6.5
72	1	....	....	1	6
73	2	1	....	3	4.5
74	....	....	1	1	1.5
75	....	....	....	....	1
76	....	....	....	....	1
77	....	....	....	....	1
78-79	1	....	....	1	1
	16	16	23	55	320
Age d'entrée: 58-59 ans.					
58-59	....	....	2	2	22
59	2	6	2	10	40
60	1	2	....	3	33
61	1	1	1	3	30
62	1	3	2	6	25.5
63	1	....	3	4	20.5
64	....	....	1	1	17.5
65	1	....	....	1	17
66	2	....	1	3	15.5
67	3	....	....	3	13
68	....	....	....	....	10
69	1	....	1	2	9.5
70	1	....	1	2	7.5
71	1	....	1	2	5.5
72	....	....	....	....	4
73	1	....	....	1	4
74	....	....	....	....	3
75	....	....	....	....	3
76	....	....	....	....	3
77	1	....	1	2	2.5
78	....	....	....	....	1

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les hommes.

1 Age d'observation à partir de l'année incl.	jusqu'à l'année excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 58-59 ans.						
79		....	....	....	....	1
80		....	....	....	....	1
81		....	....	....	....	1
82		....	....	....	....	1
83		....	....	....	....	1
84		....	....	....	....	1
85		....	....	....	....	1
86		....	....	....	....	1
87		....	....	....	....	1
88-89		....	....	1	1	0.5
		17	12	17	46	296.5
Age d'entrée: 59-60 ans.						
59-60		1	....	3	4	32.5
60		5	15	2	22	55.5
61		....	3	2	5	39.5
62		1	3	2	6	34.5
63		2	....	....	2	31
64		....	2	4	6	26
65		....	....	....	....	23
66		1	1	1	3	22
67		....	....	....	....	20
68		....	....	1	1	19.5
69		2	....	....	2	19
70		1	....	1	2	16.5
71		1	1	2	4	13.5
72		3	....	1	4	10.5
73		....	....	1	1	6.5
74		....	....	....	....	6
75		1	....	....	1	6
76		1	....	....	1	5
77		1	....	....	1	4
78		....	....	....	....	3
79		1	....	....	1	3
80		1	....	....	1	2
81		....	....	....	....	1
82		....	....	....	....	1
83		....	....	....	....	1
84		....	....	....	....	1
85		....	....	....	....	1
86		....	....	....	....	1
87-88		1	....	....	1	1
		23	25	20	68	405.5
Age d'entrée: 60-61 ans.						
60-61		1	....	2	3	37
61		3	10	5	18	65.5
62		1	3	6	10	50.5
63		1	3	1	5	43
64		2	2	4	8	37
65		2	2	....	4	31
66		5	1	3	9	26
67		....	....	2	2	18

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les hommes.

1 Age d'observation à partir de l'année jusqu'à l'année incl. excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 60-61 ans.					
68	2	....	2	4	16
69	2	....	....	2	13
70	1	1	....	2	10.5
71	....	....	....	....	9
72	....	....	....	....	9
73	....	....	....	....	9
74	....	....	....	....	9
75	1	....	....	1	9
76	1	....	1	2	7.5
77	2	....	....	2	6
78	1	....	....	1	4
79	....	....	1	1	2.5
80	....	....	....	....	2
81	....	....	....	....	2
82	1	....	....	1	2
83	....	....	....	....	1
84-85	1	....	....	1	1
	27	22	27	76	420.5
Age d'entrée: 61-62 ans.					
61-62	1	....	4	5	26.5
62	2	9	....	11	47.5
63	3	4	3	10	37.5
64	1	2	1	4	29.5
65	1	3	1	5	25
66	2	1	....	3	21.5
67	1	1	2	4	17.5
68	2	....	1	3	14.5
69	1	1	....	2	11.5
70	....	....	....	....	10
71	1	....	1	2	9.5
72	1	....	1	2	7.5
73	....	1	....	1	5.5
74	....	....	1	1	4.5
75	....	....	....	....	4
76	....	....	....	....	4
77	....	....	....	....	4
78	....	....	....	....	4
79	....	....	....	....	4
80	....	....	....	....	4
81	....	....	....	....	4
82	1	....	1	2	3.5
83	....	....	....	....	2
84	1	....	....	1	2
85-86	1	....	....	1	1
	19	22	16	57	304.5
Age d'entrée: 62-63 ans.					
62-63	....	....	2	2	34
63	2	15	3	20	59
64	1	6	1	8	44.5
65	1	2	1	4	38.5
66	3	1	6	10	32.5

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les hommes.

1 Age d'observation à partir de l'année incl.	jusqu'à l'année excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 62-63 ans.						
67		2	....	5	7	23.5
68		2	....	....	2	19
69		....	2	2	4	15
70		4	....	1	5	12.5
71		1	....	....	1	8
72		1	....	3	4	5.5
73		....	....	....	....	3
74		....	....	....	....	3
75		....	....	....	....	3
76		....	....	....	....	3
77		....	....	1	1	2.5
78		....	....	....	....	2
79		....	....	....	....	2
80		....	....	....	....	2
81		....	....	....	....	2
82		1	....	....	1	2
83		....	....	....	....	1
84		....	....	....	....	1
85		....	....	....	....	1
86-87		1	....	....	1	1
		19	26	25	70	320.5
Age d'entrée: 63-64 ans.						
63-64		1	....	....	1	34.5
64		6	9	....	15	63.5
65		3	4	1	8	50.5
66		1	2	1	4	43.5
67		2	4	....	6	39
68		6	....	1	7	34.5
69		1	1	2	4	26.5
70		1	1	2	4	22.5
71		2	....	....	2	20
72		2	....	1	3	17.5
73		1	....	4	5	13
74		1	....	....	1	10
75		1	....	....	1	9
76		....	....	....	....	8
77		1	....	....	1	8
78		1	....	....	1	7
79		1	....	....	1	6
80		....	....	1	1	4.5
81		2	....	1	3	3.5
82		....	....	....	....	1
83-84		1	....	....	1	1
		34	21	14	69	423
Age d'entrée: 64-65 ans.						
64-65		1	....	1	2	34
65		1	12	....	13	61
66		2	6	4	12	49
67		2	....	1	3	41.5
68		1	3	5	9	35
69		....	....	4	4	28

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les hommes.

1 Age d'observation à partir de l'année incl.	jusqu'à l'année excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 64-65 ans.						
70		1	....	....	1	26
71		2	1	1	4	24
72		1	....	....	1	21
73		2	....	1	3	19.5
74		1	....	....	1	17
75		2	....	1	3	15.5
76		2	....	....	2	13
77		2	....	....	2	11
78		2	....	....	2	9
79		1	....	....	1	7
80		1	....	....	1	6
81		1	....	....	1	5
82		2	....	....	2	4
83		....	....	....	....	2
84		....	....	....	....	2
85		1	....	....	1	2
86		....	....	....	....	1
87		....	....	....	....	1
88		....	....	....	....	1
89		....	....	....	....	1
90		....	....	....	....	1
91-92		1	....	....	1	1
		29	22	18	69	438.5
Age d'entrée: 65-66 ans.						
65-66		2	....	3	5	32.5
66		4	12	3	19	55.5
67		....	4	....	4	42
68		1	2	3	6	37.5
69		1	1	3	5	32
70		2	....	....	2	29
71		2	....	1	3	26.5
72		2	2	1	5	22.5
73		....	....	2	2	18
74		....	2	3	5	14.5
75		....	....	3	3	10.5
76		....	....	....	....	9
77		1	....	1	2	8.5
78		2	....	....	2	7
79		1	....	1	2	4.5
80		....	....	....	....	3
81		....	....	....	....	3
82		....	....	....	....	3
83		....	....	1	1	2.5
84		....	....	....	....	2
85		....	....	1	1	1.5
86		....	....	....	....	1
87-88		1	....	....	1	1
		19	23	26	68	366.5

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les hommes.

1 Age d'observation à partir de l'année incl.	jusqu'à l'année excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
			Age d'entrée: 66-67 ans.			
66	67	1	....	2	3	24.5
67	68	....	7	4	11	42.5
68	69	....	3	1	4	35
69	70	7	....	1	8	32.5
70	71	1	1	....	2	24.5
71	72	4	....	2	6	22
72	73	1	1	1	3	16
73	74	1	....	....	1	14
74	75	2	....	....	2	13
75	76	....	1	....	1	10.5
76	77	....	1	1	2	9
77	78	1	....	....	1	8
78	79	2	1	1	4	6
79	80	1	....	....	1	3
80	81	....	....	....	....	2
81	82	....	....	....	....	2
82	83	1	....	....	1	2
83	84	....	....	....	....	1
84	85	....	....	....	....	1
85	86	....	....	....	....	1
86	87	....	....	....	....	1
87	88	1	....	....	1	1
		23	15	13	51	271.5
			Age d'entrée: 67-68 ans.			
67	68	1	....	2	3	19.5
68	69	2	6	2	10	34
69	70	1	2	2	5	26
70	71	3	2	....	5	22
71	72	....	....	....	....	18
72	73	1	1	....	2	17.5
73	74	1	....	....	1	16
74	75	....	....	....	....	15
75	76	2	2	....	4	14
76	77	4	....	1	5	10.5
77	78	1	....	2	3	5
78	79	1	....	....	1	3
79	80	....	....	....	....	2
80	81	....	....	....	....	2
81	82	....	....	....	....	2
82	83	....	....	....	....	2
83	84	1	....	....	1	2
84	85	....	....	....	....	1
85	86	1	....	....	1	1
		19	13	9	41	212.5
			Age d'entrée: 68-69 ans.			
68	69	....	....	3	3	20
69	70	....	4	1	5	37.5
70	71	2	3	3	8	32
71	72	3	2	4	9	24
72	73	1	....	1	2	17.5
73	74	3	....	....	3	16

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les hommes.

1 Age d'observation à partir de l'année jusqu'à l'année incl. excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
		Age d'entrée: 68-69 ans.			
74.....	....	....	3	3	11.5
75.....	....	1	....	1	9.5
76.....	2	....	....	2	9
77.....	2	....	....	2	7
78.....	....	....	1	1	4.5
79.....	....	....	....	....	4
80.....	....	1	....	1	3.5
81.....	1	....	....	1	3
82.....	1	....	....	1	2
83.....	....	....	....	....	1
84-85.....	1	....	....	1	1
	16	11	16	43	203
		Age d'entrée: 69-70 ans.			
69-70.....	1	....	....	1	19
70.....	3	1	4	8	34.5
71.....	3	3	2	8	26.5
72.....	....	....	2	2	20
73.....	1	2	3	6	16.5
74.....	....	1	1	2	12
75.....	2	....	2	4	10
76.....	2	....	....	2	7
77.....	1	....	....	1	5
78.....	....	....	....	....	4
79.....	1	....	1	2	3.5
80.....	....	....	....	....	2
81.....	1	....	....	1	2
82.....	....	....	....	....	1
83.....	....	....	....	....	1
84.....	....	....	....	....	1
85.....	....	....	....	....	1
86.....	....	....	....	....	1
87-88.....	1	....	....	1	1
	16	7	15	38	168
		Age d'entrée: 70-71 ans.			
70-71.....	....	....	2	2	16.5
71.....	1	1	2	4	31.5
72.....	1	2	....	3	28
73.....	1	1	2	4	24.5
74.....	3	1	1	5	21
75.....	3	....	3	6	15.5
76.....	....	....	....	....	11
77.....	2	....	....	2	11
78.....	1	....	....	1	9
79.....	5	....	1	6	7.5
80.....	....	....	....	....	2
81.....	1	....	....	1	2
82.....	....	....	....	....	1
83.....	....	....	....	....	1
84.....	....	....	....	....	1
85-86.....	1	....	....	1	1
	19	5	11	35	183.5

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les hommes.

1 Age d'observation à partir de l'année incl.	jusqu'à l'année excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 71-72 ans.						
71-72		....	....	1	1	13.5
72		....	2	2	4	25
73		2	3	1	6	21
74		....	2	1	3	15.5
75		2	....	1	3	13.5
76		....	....	1	1	10.5
77		1	....	....	1	10
78		2	....	....	2	9
79		....	....	2	2	6
80		....	....	....	....	5
81		2	....	....	2	5
82		....	....	....	....	3
83		....	....	....	....	3
84		....	....	....	....	3
85		1	....	....	1	3
86		1	....	....	1	2
87		....	....	....	....	1
88		....	....	....	....	1
89		....	....	....	....	1
90		....	....	....	....	1
91		....	....	....	....	1
92-93		1	....	....	1	1
		12	7	9	28	154
Age d'entrée: 72-73 ans.						
72-73		1	....	....	1	15.5
73		....	4	3	7	26.5
74		2	2	2	6	21
75		1	2	....	3	16
76		4	....	....	4	14
77		2	....	1	3	9.5
78		....	....	....	....	7
79		1	....	....	1	7
80		1	....	....	1	6
81		....	....	....	....	5
82		....	....	....	....	5
83		....	....	....	....	5
84		1	....	....	1	5
85		3	....	....	3	4
86		....	....	....	....	1
87		....	....	....	....	1
88		....	....	....	....	1
89		....	....	....	....	1
90		....	....	....	....	1
91		....	....	....	....	1
92		....	....	....	....	1
93		....	....	....	....	1
94-95		....	....	1	1	0.5
		16	8	7	31	155
Age d'entrée: 73-74 ans.						
73-74		1	....	1	2	15
74		2	....	2	4	28
75		2	3	1	6	23

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les hommes.

1 Age d'observation à partir de l'année jusqu'à l'année incl. excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
		Age d'entrée: 73-74 ans.			
76	3	....	3	6	17.5
77	....	1	....	1	12.5
78	3	....	2	5	11
79	2	....	1	3	6.5
80	1	....	2	3	3
81-82	1	....	....	1	1
	15	4	12	31	117.5
		Age d'entrée: 74-75 ans.			
74-75	....	....	1	1	11
75	....	2	2	4	20
76	3	1	2	6	16.5
77	1	....	1	2	11.5
78	2	1	....	3	9.5
79	1	1	....	2	6.5
80	....	....	....	....	5
81	....	....	....	....	5
82	....	....	....	....	5
83	1	....	....	1	5
84	....	....	....	....	4
85	3	....	....	3	4
86-87	....	....	1	1	0.5
	11	5	7	23	103.5
		Age d'entrée: 75-76 ans.			
75-76	1	....	2	3	11.5
76	4	2	2	8	20
77	....	....	1	1	13.5
78	1	....	....	1	13
79	2	....	1	3	11.5
80	....	....	....	....	9
81	1	....	2	3	8
82	1	....	....	1	6
83	1	....	....	1	5
84	1	....	....	1	4
85	1	....	....	1	3
86	....	....	....	....	2
87	....	....	1	1	1.5
88	....	....	....	....	1
89-90	1	....	....	1	1
	14	2	9	25	110
		Age d'entrée: 76-77 ans.			
76-77	1	....	....	1	4
77	1	....	....	1	7
78	....	....	1	1	5.5
79	1	....	2	3	4
80	....	....	1	1	1.5
81	....	....	....	....	1
82	....	....	....	....	1
83	....	....	....	....	1
84-85	1	....	....	1	1
	4	....	4	8	26

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les hommes.

1 Age d'observation à partir de l'année incl.	jusqu'à l'année excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
			Age d'entrée: 77-78 ans.			
77-78		....	....	....	....	1.5
78		....	1	....	1	2.5
79		1	....	....	1	2
80		....	....	....	....	1
81		....	....	....	....	1
82		....	....	....	....	1
83		....	....	....	....	1
84		....	....	....	....	1
85		....	....	....	....	1
86		....	....	....	....	1
87		....	....	....	....	1
88		....	....	....	....	1
89		....	....	....	....	1
90		....	....	....	....	1
91		....	....	....	....	1
92		....	....	....	....	1
93-94		1	....	....	1	1
		2	1	....	3	20
			Age d'entrée: 78-79 ans.			
78-79		1	....	....	1	4.5
79		....	1	2	3	6.5
80		1	....	....	1	5
81		1	....	....	1	4
82		1	1	....	2	2.5
83		....	....	....	....	1
84		....	....	....	....	1
85-86		1	....	....	1	1
		5	2	2	9	25.5
			Age d'entrée: 79-80 ans.			
79-80		1	....	....	1	4
80		1	1	....	2	6.5
81		....	1	....	1	4.5
82		....	....	....	....	4
83		1	....	....	1	4
84		1	....	....	1	3
85		....	....	....	....	2
86		....	....	....	....	2
87		....	....	....	....	2
88		....	....	....	....	2
89		1	....	....	1	2
90		....	....	....	....	1
91		....	....	....	....	1
92		....	....	....	....	1
93		....	....	....	....	1
94		....	....	....	....	1
95-96		....	....	1	1	0.5
		5	2	1	8	41.5
			Age d'entrée: 80-81 ans.			
80-81		....	....	....	....	3
81		1	....	....	1	6

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les hommes.

1 Age d'observation à partir de l'année incl.	jusqu'à l'année excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 80-81 ans.						
82		....	....	....	....	5
83		....	....	....	....	5
84		1	....	....	1	5
85		....	....	2	2	3
86		....	1	....	1	1.5
87		....	....	....	....	1
88-89		1	....	....	1	1
		3	1	2	6	30.5
Age d'entrée: 81-82 ans.						
81-82		....	....	....	....	0.5
82		....	....	....	....	1
83-84		1	....	....	1	1
		1	....	....	1	2.5
Age d'entrée: 82-83 ans.						
82-83		....	....	....	....	1
83		....	....	....	....	2
84		1	....	....	1	2
85-86		....	1	....	1	0.5
		1	1	....	2	5.5
Age d'entrée: 84-85 ans.						
84-85		1	....	....	1	0.5
		1	....	....	1	0.5
Age d'entrée: 85-86 ans.						
85-86		....	....	....	....	0.5
86		....	....	....	....	1
87		....	....	....	....	1
88		....	....	....	....	1
89-90		1	....	....	1	1
		1	....	....	1	4.5
Age d'entrée: 86-87 ans.						
86-87		....	....	....	....	1
87		....	....	....	....	2
88		....	....	....	....	2
89		....	....	....	....	2
90		1	....	....	1	2
91		....	....	....	....	1
92-93		1	....	....	1	1
		2	....	....	2	11

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation à partir de l'année incl.	jusqu'à l'année excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 0 an inclusivement jusqu'à 1 an exclusivement.						
0	1	....	3	....	3	32
1	2	1	....	....	1	64
2	3	2	2	....	4	62
3	4	2	....	....	2	59
4	5	....	1	....	1	56.5
5	6	2	....	....	2	56
6	7	....	....	....	....	54
7	8	....	....	1	1	53.5
8	9	....	1	....	1	52.5
9	10	....	....	1	1	51.5
10	11	1	....	1	2	50.5
11	12	....	....	3	3	47.5
12	13	....	1	2	3	44.5
13	14	....	....	3	3	41.5
14	15	1	....	3	4	38.5
15	16	....	1	2	3	34.5
16	17	....	1	....	1	32.5
17	18	....	....	1	1	31.5
18	19	....	....	....	....	31
19	20	....	....	....	....	31
20	21	1	1	....	2	30.5
21	22	....	....	1	1	28.5
22	23	....	....	1	1	27.5
23	24	....	....	2	2	26
24	25	....	....	....	....	25
25	26	....	....	3	3	23.5
26	27	1	....	....	1	22
27	28	....	....	....	....	21
28	29	....	....	1	1	20.5
29	30	....	....	1	1	19.5
30	31	....	....	1	1	18.5
31	32	....	....	1	1	17.5
32	33	....	....	....	....	17
33	34	....	....	1	1	16.5
34	35	....	....	1	1	15.5
35	36	....	....	2	2	14
36	37	....	....	4	4	11
37	38	....	....	2	2	8
38	39	....	....	1	1	6.5
39	40	....	....	2	2	5
40	41	....	....	1	1	3.5
41	42	....	....	3	3	1.5
		11	11	45	67	1302.5
Age d'entrée: 1 an inclusivement jusqu'à 2 ans exclusivement.						
1	2	....	1	....	1	4.5
2	3	....	2	....	....	8
3	4	....	....	....	....	7
4	5	....	....	....	....	7
5	6	....	....	....	....	7
6	7	....	....	....	....	7

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation à partir de l'année jusqu'à l'année incl. excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 1 an inclusivement jusqu'à 2 ans exclusivement.					
7	....	....	....	....	7
8	....	....	....	....	7
9	....	....	....	....	7
10	....	....	....	....	7
11	....	....	1	1	6.5
12	....	....	1	1	5.5
13	....	....	....	....	5
14	....	....	....	....	5
15	....	....	1	1	4.5
16	....	....	....	....	4
17	....	....	....	....	4
18	....	....	....	....	4
19	....	....	....	....	4
20	....	....	....	....	4
21	....	....	....	....	4
22	....	....	....	....	4
23	....	....	....	....	4
24	....	....	....	....	4
25	....	....	....	....	4
26	....	....	....	....	4
27	....	....	....	....	4
28	....	....	....	....	4
29	....	....	....	....	4
30	....	....	1	1	3.5
31	....	....	....	....	3
32	....	....	....	....	3
33	....	....	....	....	3
34	....	....	1	1	2.5
35	....	....	1	1	1.5
36	....	....	....	....	1
37	....	....	....	....	1
38	....	....	....	....	1
39	....	....	....	....	1
40	....	....	....	....	1
41	....	....	....	....	1
42	....	....	....	....	1
43-44	....	....	1	1	0.5
	....	3	7	10	175
Age d'entrée: 2 ans, inclusivement jusqu'à 3 ans exclusivement.					
2-3	....	....	....	....	3.5
3	....	....	....	....	7
4	....	....	1	1	6.5
5	....	....	....	....	6
6	....	1	....	1	5.5
7	....	....	....	....	5
8	....	....	....	....	5
9	....	....	....	....	5
10	....	....	....	....	5
11	....	....	1	1	4.5
12	....	....	1	1	3.5
13	....	....	....	....	3
14	....	....	....	....	3
15	....	....	....	....	3

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation à partir de l'année jusqu'à l'année incl. excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 2 ans, inclusivement jusqu'à 3 ans exclusivement.					
16	....	....	....	....	3
17	....	....	....	....	3
18	....	....	....	....	3
19	....	....	....	....	3
20	....	....	....	....	3
21	....	....	....	....	3
22	....	....	....	....	3
23	....	....	....	....	3
24	....	....	....	....	3
25	....	....	....	....	3
26	....	....	1	1	2.5
27	....	....	....	....	2
28	....	....	....	....	2
29	....	....	1	1	1.5
30	....	....	....	....	1
31	....	....	....	....	1
32	....	....	....	....	1
33	....	....	....	....	1
34	....	....	....	....	1
35	....	....	....	....	1
36-37	....	....	1	1	0.5
	....	1	6	7	110
Age d'entrée: 3 ans, inclusivement jusqu'à 4 ans exclusivement.					
3-4	1	....	....	1	4
4	....	....	....	....	7
5	....	....	....	....	7
6	....	....	....	....	7
7	....	....	....	....	7
8	....	0	1	1	6.5
9	....	....	....	....	6
10	....	....	....	....	6
11	....	....	1	1	5.5
12	....	....	....	....	5
13	....	....	....	....	5
14	....	....	1	1	4.5
15	....	....	2	2	3
16	....	....	....	....	2
17	....	....	1	1	1.5
18	....	....	....	....	1
19	....	....	....	....	1
20	....	....	....	....	1
21	....	....	....	....	1
22	....	....	....	....	1
23	....	....	....	....	1
24	....	....	....	....	1
25	....	....	....	....	1
26	....	....	....	....	1
27	....	....	....	....	1
28-29	....	....	1	1	0.5
	1	....	7	8	87.5

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation à partir de l'année incl.	jusqu'à l'année excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 4 ans, inclusivement jusqu'à 5 ans exclusivement.						
4	5	....	....	....	....	2.5
5	6	....	....	....	....	5
6	7	....	....	....	....	5
7	8	....	....	....	....	5
8	9	....	....	....	....	5
9	10	....	....	....	....	5
10	11	....	....	....	....	5
11	12	....	....	....	....	5
12	13	....	....	....	....	5
13	14	....	....	....	....	5
14	15	....	....	....	....	5
15	16	....	....	1	1	4.5
16	17	....	....	....	....	4
17	18	....	....	....	....	4
18	19	....	....	....	....	4
19	20	....	....	....	....	4
20	21	....	....	....	....	4
21	22	....	....	....	....	4
22	23	....	....	....	....	4
23	24	....	....	....	....	4
24	25	....	....	....	....	4
25	26	....	....	....	....	4
		....	....	1	1	98
Age d'entrée: 4-5 ans.						
26	27	....	....	1	1	3.5
27	28	....	....	....	....	3
28	29	....	....	....	....	3
29	30	....	....	....	....	3
30	31	....	....	....	....	3
31	32	....	....	....	....	3
32	33	....	....	....	....	3
33	34	....	....	1	1	2.5
34	35	....	....	....	....	2
35	36	....	....	....	....	2
36	37	....	....	....	....	2
37	38	....	....	....	....	2
38	39	1	....	1	2	1.5
		1	....	4	5	131.5
Age d'entrée: 5-6 ans.						
5	6	....	1	....	1	5
6	7	1	....	1	2	9.5
7	8	....	....	1	1	7.5
8	9	....	....	1	1	6.5
9	10	....	....	....	....	6
10	11	....	....	....	....	6
11	12	....	....	....	....	6
12	13	....	....	....	....	6
13	14	....	....	....	....	6
14	15	....	....	1	1	5.5
15	16	....	....	....	....	5

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation à partir de l'année jusqu'à l'année incl. excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 5-6 ans.					
16	....	....	....	....	5
17	....	....	....	....	5
18	....	1	....	1	4.5
19	....	....	....	....	4
20	....	....	....	....	4
21	....	....	....	....	4
22	....	....	1	1	3.5
23	....	....	....	....	3
24	....	....	....	....	3
25	....	....	....	....	3
26	....	....	....	....	3
27	....	....	....	....	3
28	....	....	....	....	3
29	....	....	....	....	3
30	....	....	....	....	3
31	....	....	....	....	3
32	....	....	....	....	3
33	....	....	....	....	3
34	....	....	1	1	2.5
35	....	....	....	....	2
36	....	....	....	....	2
37	....	....	1	1	1.5
38	....	....	....	....	1
39	....	....	....	....	1
40	....	....	....	....	1
41	....	....	....	....	1
42	....	....	....	....	1
43	....	....	....	....	1
44	....	....	....	....	1
45-46	....	....	1	1	0.5
	1	2	8	11	147.5
Age d'entrée: 6-7 ans.					
6-7	....	....	....	....	2.5
7	....	1	....	1	4.5
8	....	1	1	2	3
9	....	....	....	....	2
10	....	....	....	....	2
11	....	....	1	1	1.5
12	....	....	....	....	1
13	....	....	....	....	1
14	....	....	....	....	1
15	....	....	....	....	1
16	....	....	....	....	1
17	....	....	....	....	1
18	....	....	....	....	1
19	....	....	....	....	1
20	....	....	....	....	1
21	....	....	....	....	1
22	....	....	....	....	1
23	....	....	....	....	1
24	....	....	....	....	1
25	....	....	....	....	1
26	....	....	....	....	1
27	....	....	....	....	1

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation à partir de l'année incl.	jusqu'à l'année excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 6-7 ans.						
28		....	....	....	....	1
29		....	....	....	....	1
30		....	....	....	....	1
31		....	....	....	....	1
32		....	....	....	....	1
33		....	....	....	....	1
34		....	....	....	....	1
35		....	....	....	....	1
36		....	....	....	....	1
37		....	....	....	....	1
38-39		....	....	1	1	0.5
		....	2	3	5	42
Age d'entrée: 7-8 ans.						
7-8		....	....	....	....	2.5
8		....	....	....	....	5
9		....	....	1	1	4.5
10		....	....	....	....	4
11		....	....	....	....	4
12		....	....	1	1	3.5
13		....	....	....	....	3
14		....	....	....	....	3
15		....	....	....	....	3
16		....	....	....	....	3
17		....	....	....	....	3
18		....	....	....	....	3
19		....	1	....	1	2.5
20		....	....	....	....	2
21		....	....	....	....	2
22		....	....	....	....	2
23		....	....	....	....	2
24		....	....	....	....	2
25		....	....	....	....	2
26		....	....	....	....	2
27		....	....	....	....	2
28		....	....	....	....	2
29		....	....	....	....	2
30		....	....	....	....	2
31		....	....	1	1	1.5
32		....	....	....	....	1
33		....	....	....	....	1
34		....	....	....	....	1
35		....	....	....	....	1
36		....	....	....	....	1
37		....	....	....	....	1
38		....	....	....	....	1
39		....	....	....	....	1
40		....	....	....	....	1
41		....	....	....	....	1
42-43		....	....	1	1	0.5
		....	1	4	5	78

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation à partir de l'année jusqu'à l'année incl. excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 8-9 ans.					
8-9	....	....	....	....	4
9	....	....	....	....	8
10	....	....	1	1	7.5
11	....	....	....	....	7
12	....	....	....	....	7
13	....	....	....	....	7
14	....	....	....	....	7
15	....	....	....	....	7
16	....	....	....	....	7
17	....	....	1	1	6.5
18	....	1	....	1	5.5
19	....	....	1	1	4.5
20	....	....	....	....	4
21	....	1	....	1	3.5
22	....	....	....	....	3
23	....	....	....	....	3
24	....	....	....	....	3
25	....	....	....	....	3
26	1	....	....	1	3
27	....	....	....	....	2
28	....	....	....	....	2
29	....	....	....	....	2
30	....	....	....	....	2
31	....	....	....	....	2
32	....	....	....	....	2
33	....	....	....	....	2
34	....	....	....	....	2
35	....	....	....	....	2
36	....	....	....	....	2
37	....	....	....	....	2
38	....	....	....	....	2
39	....	....	....	....	2
40	....	....	1	1	1.5
41	....	....	....	....	1
42	....	....	....	....	1
43	....	....	....	....	1
44	....	....	....	....	1
45	....	....	....	....	1
46	....	....	....	....	1
47-48	....	....	1	1	0.5
	1	2	5	8	134.5
Age d'entrée: 9-10 ans.					
9-10	....	1	....	1	1.5
10-11	....	....	....	....	3
11-12	....	....	....	....	3
12	....	....	....	....	3
13	....	....	....	....	3
14	....	....	....	....	3
15	....	....	....	....	3
16	....	....	....	....	3
17	....	....	....	....	3
18	....	....	....	....	3
19	....	....	....	....	3

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation à partir de l'année incl.	jusqu'à l'année excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 9-10 ans.						
20		....	....	1	1	2.5
21		....	....	....	....	2
22		....	....	....	....	2
23		....	....	1	1	1.5
24		....	....	....	....	1
25		....	....	....	....	1
26		....	....	....	....	1
27		....	....	....	....	1
28		....	....	....	....	1
29		....	....	....	....	1
30		....	....	....	....	1
31		....	....	....	....	1
32		....	....	....	....	1
33		....	....	....	....	1
34		....	....	....	....	1
35		....	....	....	....	1
36-37		....	....	1	1	0.5
		....	1	3	4	52
Age d'entrée: 10-11 ans.						
10-11		....	....	....	....	2.5
11		....	....	....	....	5
12		....	....	....	....	5
13		....	....	....	....	5
14		....	....	....	....	5
15		....	....	....	....	5
16		....	....	....	....	5
17		....	....	....	....	5
18		....	....	....	....	5
19		....	....	....	....	5
20		....	....	2	2	4
21		....	....	....	....	3
22		....	....	....	....	3
23		....	....	....	....	3
24		....	....	....	....	3
25		....	....	....	....	3
26		....	....	....	....	3
27		....	....	....	....	3
28		....	....	....	....	3
29		....	....	....	....	3
30		....	....	....	....	3
31		....	....	....	....	3
32		....	....	....	....	3
33		....	....	....	....	3
34		....	....	....	....	3
35		....	....	....	....	3
36		....	....	....	....	3
37		....	....	....	....	3
38		1	....	....	1	3
39		...	....	....	....	2
40		....	....	....	....	2
41		....	....	1	1	1.5
42		....	....	....	....	1
43		....	....	....	....	1

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation à partir de l'année incl. / jusqu'à l'année excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 10-11 ans.					
44	....	....	....	....	1
45-46	....	....	1	1	0.5
	1	....	4	5	114.5
Age d'entrée: 11-12 ans.					
11-12	....	1	....	1	2.5
12	....	1	....	1	4.5
13	....	....	1	1	3.5
14	....	....	....	....	3
15	....	....	....	....	3
16	....	....	....	....	3
17	....	....	....	....	3
18	....	....	....	....	3
19	....	....	....	....	3
20	....	....	....	....	3
21	....	1	....	1	2.5
22	....	....	....	....	2
23	....	....	....	....	2
24	....	....	....	....	2
25	....	....	....	....	2
26	....	....	....	....	2
27	....	....	....	....	2
28	....	....	....	....	2
29	....	....	....	....	2
30	....	....	....	....	2
31	....	....	....	....	2
32	....	....	....	....	2
33	....	....	....	....	2
34	....	....	....	....	2
35	....	....	....	....	2
36	....	....	1	1	1.5
37	....	....	....	....	1
38	....	....	....	....	1
39	....	....	....	....	1
40	....	....	....	....	1
41	....	....	....	....	1
42	....	....	....	....	1
43	....	....	....	....	1
44	....	....	....	....	1
45	....	....	....	....	1
46	....	....	....	....	1
47	....	....	....	....	1
48-49	....	....	1	1	0.5
	....	3	3	6	75
Age d'entrée: 12-13 ans.					
12-13	....	....	....	....	3.5
13	....	....	....	....	7
14	....	....	....	....	7
15	....	....	1	1	6.5
16	....	1	....	1	5.5

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation à partir de l'année jusqu'à l'année incl. excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 12-13 ans.					
17	....	....	....	....	5
18	....	....	2	2	4
19	....	....	....	....	3
20	....	....	....	....	3
21	....	....	....	....	3
22	....	....	1	1	2.5
23	....	....	....	....	2
24	....	....	....	....	2
25	....	....	....	....	2
26	....	....	....	....	2
27	....	....	....	....	2
28	....	....	....	....	2
29	....	....	....	....	2
30	....	....	....	....	2
31	....	1	....	1	1.5
32	....	....	....	....	1
33	....	....	....	....	1
34	....	....	....	....	1
35	....	....	....	....	1
36	....	....	....	....	1
37	....	....	....	....	1
38	....	....	....	....	1
39	....	....	....	....	1
40	....	....	....	....	1
41	....	....	....	....	1
42	....	....	....	....	1
43	....	....	....	....	1
44	....	....	....	....	1
45	....	....	....	....	1
46	....	....	....	....	1
47	....	....	....	....	1
48	....	....	....	....	1
49	....	....	....	....	1
50	....	....	....	....	1
51	....	....	....	....	1
52	....	....	....	....	1
53-54	....	....	1	1	0.5
	....	2	5	7	89
Age d'entrée: 13-14 ans.					
13-14	....	1	....	1	0.5
14	....	....	....	....	1
15	....	....	....	....	1
16	....	....	....	....	1
17-18	....	....	1	1	0.5
	....	1	1	2	4
Age d'entrée: 14-15 ans.					
14-15	....	....	....	....	1
15	....	1	....	1	1.5
16	....	....	....	....	1
17	....	....	....	....	1
18	....	....	....	....	1

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation à partir de l'année incl.	jusqu'à l'année excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 14-15 ans.						
19		....	....	....	....	1
20		....	....	....	....	1
21		....	....	....	....	1
22		....	....	....	....	1
23		....	....	....	....	1
24		....	....	....	....	1
25		....	....	....	....	1
26		....	....	....	....	1
27		....	....	....	....	1
28		....	....	....	....	1
29		....	....	....	....	1
30		....	....	....	....	1
31		....	....	....	....	1
32		....	....	....	....	1
33		....	....	....	....	1
34		....	....	....	....	1
35		....	....	....	....	1
36-37		....	....	1	1	0.5
			1	1	2	23
Age d'entrée: 15-16 ans.						
15-16		....	....	....	....	2
16		....	....	....	....	4
17		....	....	....	....	4
18		....	....	....	....	4
19		....	1	1	2	3
20		....	....	....	....	2
21		...	....	....	....	2
22		....	....	....	....	2
23		....	....	....	....	2
24		....	....	....	....	2
25		....	....	....	....	2
26		....	....	....	....	2
27		....	....	....	....	2
28		....	....	....	....	2
29		....	....	....	....	2
30		....	....	....	....	2
31		....	....	....	....	2
32		....	....	....	....	2
33		....	....	....	....	2
34		....	....	....	....	2
35		....	....	....	....	2
36		....	....	....	....	2
37		....	....	....	....	2
38		....	....	....	....	2
39		....	....	....	....	2
40		....	....	....	....	2
41		....	....	....	....	2
42		....	....	....	....	2
43		....	....	....	....	2
44		....	....	....	....	2
45		....	....	1	1	1.5
46		....	....	....	....	1
47		....	....	....	....	1
48-49		....	....	....	....	1

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation à partir de l'année jusqu'à l'année incl. excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 15-16 ans.					
49-50	....	....	....	....	1
50	....	....	....	....	1
51	....	....	....	....	1
52	....	....	....	....	1
53	....	....	....	....	1
54	....	....	....	....	1
55-56	....	....	1	1	0.5
	....	1	3	4	78
Age d'entrée: 16-17 ans.					
16-17	....	....	....	....	2.5
17	....	....	....	....	5
18	....	....	....	....	5
19	....	....	....	....	5
20	....	....	....	....	5
21	....	....	....	....	5
22	....	....	....	....	5
23	....	....	....	....	5
24	....	....	....	....	5
25	....	....	....	....	5
26	....	....	2	2	4
27	....	....	....	....	3
28	....	....	....	....	3
29	....	....	....	....	3
30	....	....	....	....	3
31	....	....	....	....	3
32	....	....	....	....	3
33	....	....	....	....	3
34	....	....	1	1	2.5
35	....	....	....	....	2
36	....	....	....	....	2
37	....	....	....	....	2
38	....	....	....	....	2
39	....	....	....	....	2
40	....	....	....	....	2
41	....	....	....	....	2
42	....	....	....	....	2
43	....	....	1	1	1.5
44	....	....	....	....	1
45	....	....	....	....	1
46	....	....	....	....	1
47	....	....	....	....	1
48	....	....	....	....	1
49	....	....	....	....	1
50	....	....	....	....	1
51	....	....	....	....	1
52	....	....	....	....	1
53-54	....	....	1	1	0.5
	....	....	5	5	102
Age d'entrée: 17-18 ans.					
17-18	....	....	....	....	5
18	....	....	....	....	10
19	....	1	....	1	9.5

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation à partir de l'année incl. / jusqu'à l'année excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 17-18 ans.					
20	....	....	....	....	9
21	1	....	1	2	8.5
22	....	....	1	1	6.5
23	....	....	1	1	5.5
24	....	1	....	1	4.5
25	....	....	....	....	4
26	....	....	....	....	4
27	....	....	1	1	3.5
28	....	....	1	1	2.5
29	....	....	....	....	2
30	....	....	1	1	1.5
31	....	....	....	....	1
32	....	....	....	....	1
33	....	....	....	....	1
34	....	....	....	....	1
35	....	....	....	....	1
36	....	....	....	....	1
37	....	....	....	....	1
38	....	....	....	....	1
39	....	....	....	....	1
40-41	1	....	....	1	1
	2	2	6	10	86
Age d'entrée: 18-19 ans.					
18-19	....	....	....	....	6.5
19	....	....	....	....	13
20	....	1	....	1	12.5
21	....	....	....	....	12
22	....	....	....	....	12
23	....	....	....	....	12
24	....	2	1	3	10.5
25	....	....	....	....	9
26	....	1	1	2	8
27	....	....	....	....	7
28	....	....	....	....	7
29	....	....	....	....	7
30	....	....	....	....	7
31	....	1	....	1	6.5
32	....	....	....	....	6
33	....	....	1	1	5.5
34	....	....	....	....	5
35	....	....	....	....	5
36	....	....	....	....	5
37	....	....	....	....	5
38	....	....	1	1	4.5
39	....	....	1	1	3.5
40	....	....	....	....	3
41	....	....	....	....	3
42	....	....	1	1	2.5
43	....	....	....	....	2
44	....	....	....	....	2
45	....	....	1	1	1.5
46	....	....	....	....	1
47	....	....	....	....	1

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation à partir de l'année jusqu'à l'année incl. excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 18-19 ans.					
48	....	....	....	....	1
49	....	....	....	....	1
50	....	....	....	....	1
51	....	....	....	....	1
52	....	....	....	....	1
53	....	....	....	....	1
54	....	....	....	....	1
55-56	....	....	1	1	0.5
	....	5	8	13	193
Age d'entrée: 19-20 ans.					
19-20	....	....	....	....	7.5
20	....	....	1	1	14.5
21	....	....	....	....	14
22	....	....	1	1	13.5
23	....	1	....	1	12.5
24	....	....	....	....	12
25	....	....	1	1	11.5
26	....	1	....	1	10.5
27	....	....	....	....	10
28	....	1	....	1	9.5
29	....	....	....	....	9
30	....	1	....	1	8.5
31	....	....	1	1	7.5
32	....	....	....	....	7
33	....	....	....	....	7
34	....	....	....	....	7
35	....	1	1	2	6
36	....	....	....	....	5
37	....	....	....	....	5
38	....	....	1	1	4.5
39	....	....	....	....	4
40	....	....	1	1	3.5
41	....	....	....	....	3
42	....	....	....	....	3
43	....	....	....	....	3
44	....	....	....	....	3
45	....	1	....	1	2.5
46	....	....	....	....	2
47	....	....	....	....	2
48	....	....	....	....	2
49	....	....	....	....	2
50	....	....	1	1	1.5
51	....	....	....	....	1
52	....	....	....	....	1
53	....	....	....	....	1
54	....	....	....	....	1
55	....	....	....	....	1
56-57	....	....	1	1	0.5
	....	6	9	15	219

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation à partir de l'année jusqu'à l'année incl. excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 20-21 ans.					
20-21	....	....	....	....	5
21	....	....	1	1	9.5
22	....	....	....	....	9
23	....	1	....	1	8.5
24	....	....	....	....	8
25	....	1	....	1	7.5
26	....	....	....	....	7
27	....	....	....	....	7
28	....	....	2	2	6
29	....	....	....	....	5
30	....	....	....	....	5
31	....	....	....	....	5
32	....	....	....	....	5
33	....	1	....	1	4.5
34	....	....	....	....	4
35	....	....	....	....	4
36	....	....	....	....	4
37	....	....	....	....	4
38	....	....	1	1	3.5
39	....	....	1	1	2.5
40	....	....	....	....	2
41	....	....	....	....	2
42	....	....	....	....	2
43	....	....	....	....	2
44	....	....	....	....	2
45	....	....	....	....	2
46	....	....	....	....	2
47	....	....	....	....	2
48	....	....	....	....	2
49	....	....	....	....	2
50	....	....	1	1	1.5
51	....	....	....	....	1
52	....	....	....	....	1
53	....	....	....	....	1
54	....	....	....	....	1
55	....	....	....	....	1
56	....	....	....	....	1
57	....	....	....	....	1
58-59	....	....	1	1	0.5
	....	3	7	10	143
Age d'entrée: 21-22 ans.					
21-22	....	....	1	1	12
22	....	1	1	2	23
23	....	2	....	2	21
24	....	3	....	3	18.5
25	....	1	....	1	16.5
26	....	1	1	2	15
27	....	2	....	2	13
28	....	....	....	....	12
29	1	....	....	1	12
30	....	....	....	....	11
31	....	1	....	1	10.5
32	....	....	1	1	9.5

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation à partir de l'année jusqu'à l'année incl. excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 21-22 ans.					
33	....	1	....	1	8.5
34	....	....	....	....	8
35	....	....	1	1	7.5
36	....	....	....	....	7
37	....	....	....	....	7
38	....	....	....	....	7
39	....	....	....	....	7
40	1	....	1	2	6.5
41	....	....	....	....	5
42	....	....	1	1	4.5
43	....	....	....	....	4
44	....	....	1	1	3.5
45	....	....	....	....	3
46	....	....	....	....	3
47	....	....	....	....	3
48	....	....	....	....	3
49	....	....	....	....	3
50	....	....	....	....	3
51	....	....	....	....	3
52	....	....	2	2	2
53	....	....	....	....	1
54	....	....	....	....	1
55	....	....	....	....	1
56-57	....	....	1	1	0.5
	2	12	11	25	276
Age d'entrée: 22-23 ans.					
22-23	....	1	....	1	6.5
23	1	....	1	2	12.5
24	....	....	1	1	10.5
25	....	1	....	1	9.5
26	1	....	....	1	9
27	....	....	1	1	7.5
28	....	....	1	1	6.5
29	....	....	....	....	6
30	....	....	....	....	6
31	....	....	....	....	6
32	....	....	....	....	6
33	....	....	....	....	6
34	....	....	....	....	6
35	....	....	....	....	6
36	....	....	....	....	6
37	1	....	....	1	6
38	....	....	....	....	5
39	....	....	....	....	5
40	....	....	....	....	5
41	....	....	1	1	4.5
42	....	....	....	....	4
43	....	....	....	....	4
44	....	....	....	....	4
45	....	....	1	1	3.5
46	....	....	....	....	3
47	....	....	....	....	3
48	....	....	....	....	3

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation à partir de l'année jusqu'à l'année incl. excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 22-23 ans.					
49	....	....	....	....	3
50	....	....	....	....	3
51	....	....	....	....	3
52	....	....	....	....	3
53	....	....	1	1	2.5
54	....	....	....	....	2
55	....	....	....	....	2
56	....	....	....	....	2
57	....	....	....	....	2
58	....	....	....	....	2
59	....	....	....	....	2
60	....	....	1	1	1.5
61-62	1	....	....	1	1
	4	2	8	14	189
Age d'entrée: 23-24 ans.					
23-24	....	....	....	....	5
24	....	2	....	2	9
25	....	....	....	....	8
26	....	1	....	1	7.5
27	....	1	....	1	6.5
28	....	....	....	....	6
29	....	....	....	....	6
30	....	....	....	....	6
31	....	....	....	....	6
32	1	....	....	1	6
33	....	....	....	....	5
34	....	....	....	....	5
35	....	....	....	....	5
36	....	....	....	....	5
37	....	....	....	....	5
38	....	....	....	....	5
39	....	....	1	1	4.5
40	....	....	....	....	4
41	....	....	....	....	4
42	....	....	....	....	4
43	....	....	....	....	4
44	....	....	....	....	4
45	....	....	....	....	4
46	....	....	1	1	3.5
47	....	....	....	....	3
48	1	....	....	1	3
49	....	....	....	....	2
50	....	....	1	1	1.5
51	....	....	....	....	1
52	....	....	....	....	1
53	....	....	....	....	1
54	....	....	....	....	1
55	....	....	....	....	1
56	....	....	....	....	1
57	....	....	....	....	1
58	....	....	....	....	1
59	....	....	....	....	1
60	....	....	....	....	1

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation à partir de l'année incl.	jusqu'à l'année excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
			Age d'entrée: 23-24 ans.			
61		....	....	....	....	1
62-63		....	....	1	1	0.5
		2	4	4	10	149
			Age d'entrée: 24-25 ans.			
24-25		....	....	1	1	7
25		....	....	1	1	13.5
26		....	1	2	3	11.5
27		....	1	1	2	9
28		....	....	1	1	7.5
29		....	....	....	....	7
30		....	....	....	....	7
31		....	....	....	....	7
32		....	....	....	....	7
33		1	....	....	1	7
34		....	....	....	....	6
35		....	....	....	....	6
36		....	....	....	....	6
37		....	....	....	....	6
38		....	....	....	....	6
39		....	....	....	....	6
40		....	....	....	....	6
41		....	....	1	1	5.5
42		....	....	....	....	5
43		....	....	....	....	5
44		....	....	....	....	5
45		....	....	....	....	5
46		....	....	....	....	5
47		1	....	....	1	5
48		....	....	....	....	4
49		....	....	....	....	4
50		....	....	....	....	4
51		....	....	....	....	4
52		....	....	....	....	4
53		....	....	....	....	4
54		....	....	1	1	3.5
55		....	....	....	....	3
56		....	....	2	2	2
57		....	....	....	....	1
58		....	....	....	....	1
59		....	....	....	....	1
60		....	....	....	....	1
61-62		....	....	1	1	0.5
		2	2	11	15	198
			Age d'entrée: 25-26 ans.			
25-26		....	....	....	....	8.5
26		....	....	....	....	17
27		1	2	....	3	16
28		....	2	....	2	13
29		1	....	1	2	11.5

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation à partir de l'année jusqu'à l'année incl. excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 25-26 ans.					
30	....	....	....	....	10
31	....	1	....	1	9.5
32	....	....	1	1	8.5
33	....	....	....	....	8
34	....	1	1	2	7
35	....	....	....	....	6
36	....	....	....	....	6
37	....	....	1	1	5.5
38	....	....	....	....	5
39	....	1	....	1	4.5
40	....	....	2	2	3
41	....	....	....	....	2
42	....	....	....	....	2
43	....	....	....	....	2
44	....	....	....	....	2
45	....	....	....	....	2
46	....	....	....	....	2
47	....	1	....	1	1.5
48	....	....	....	....	1
49	....	....	....	....	1
50	....	....	....	....	1
51	....	....	....	....	1
52	....	....	....	....	1
53-54	....	1	....	1	0.5
	2	9	6	17	158
Age d'entrée: 26-27 ans.					
26-27	....	....	1	1	6
27	....	1	....	1	11.5
28	....	....	....	....	11
29	....	1	1	2	10
30	....	2	....	2	8
31	....	....	....	....	7
32	....	....	....	....	7
33	....	....	1	1	6.5
34	....	....	....	....	6
35	....	....	1	1	5.5
36	....	....	....	....	5
37	....	....	....	....	5
38	....	....	....	....	5
39	....	....	....	....	5
40	....	....	1	1	4.5
41	....	....	....	....	4
42	....	....	....	....	4
43	....	....	....	....	4
44	....	....	1	1	3.5
45	....	....	....	....	3
46	....	....	1	1	2.5
47	....	....	....	....	2
48	....	....	1	1	1.5
49	....	....	....	....	1
50	....	....	....	....	1
51	....	....	....	....	1
52	....	....	....	....	1
53	....	....	....	....	1

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation à partir de l'année jusqu'à l'année incl. excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 26-27 ans.					
54	....	....	....	....	1
55	....	....	....	....	1
56	....	....	....	....	1
57	....	....	....	....	1
58	....	....	....	....	1
59	....	....	....	....	1
60	....	....	....	....	1
61	....	....	....	....	1
62-63	....	....	1	1	0.5
	....	4	9	13	141
Age d'entrée: 27-28 ans.					
27-28	....	....	....	....	12.5
28	....	....	....	....	25
29	....	1	1	2	24
30	....	1	....	1	22.5
31	....	1	....	1	21.5
32	....	....	....	....	21
33	....	....	....	....	21
34	....	....	....	....	21
35	....	....	1	1	20.5
36	....	1	....	1	19.5
37	....	....	2	2	18
38	....	....	3	3	15.5
39	....	....	....	....	14
40	....	....	1	1	13.5
41	....	....	....	....	13
42	....	....	....	....	13
43	....	....	1	1	12.5
44	....	....	2	2	11
45	....	....	....	....	10
46	....	....	....	....	10
47	....	....	....	....	10
48	....	....	....	....	10
49	....	....	1	1	9.5
50	....	....	....	....	9
51	....	....	1	1	8.5
52	....	....	....	....	8
53	....	....	....	....	8
54	....	....	....	....	8
55	....	....	....	....	8
56	....	....	....	....	8
57	....	....	....	....	8
58	1	....	1	2	7.5
59	....	....	....	....	6
60	....	....	2	2	5
61	....	....	....	....	4
62	....	....	1	1	3.5
63	1	....	....	1	3
64	....	....	1	1	1.5
65	....	....	....	....	1
66	....	....	....	....	1
67-68	....	....	1	1	0.5
	2	4	19	25	467

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation à partir de l'année jusqu'à l'année incl. excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 28-29 ans.					
28-29	....	....	1	1	5.5
29	....	1	....	1	10.5
30	....	1	....	1	9.5
31	....	1	....	1	8.5
32	....	1	....	1	7.5
33	....	....	....	....	7
34	....	....	....	....	7
35	....	....	....	....	7
36	....	....	1	1	6.5
37	....	....	1	1	5.5
38	....	....	1	1	4.5
39	....	....	....	....	4
40	....	....	....	....	4
41	....	....	....	....	4
42	....	....	....	....	4
43	....	....	....	....	4
44	....	....	....	....	4
45	....	....	....	....	4
46	....	....	....	....	4
47	....	1	....	1	3.5
48	....	....	....	....	3
49	....	....	....	....	3
50	....	....	....	....	3
51	....	....	....	....	3
52	....	....	....	....	3
53	....	....	....	....	3
54	....	....	....	....	3
55	....	....	....	....	3
56	....	....	....	....	3
57	....	....	....	....	3
58	....	....	....	....	3
59	....	....	....	....	3
60	....	....	....	....	3
61	....	....	....	....	3
62	....	....	....	....	3
63	....	....	1	1	2.5
64	....	....	1	1	1.5
65-66	....	....	1	1	0.5
	....	5	7	12	164
Age d'entrée: 29-30 ans.					
29-30	....	1	1	2	5.5
30	....	....	1	1	10.5
31	....	1	2	3	8.5
32	....	....	....	....	7
33	....	1	....	1	6.5
34	....	....	....	....	6
35	....	....	....	....	6
36-37	....	....	1	1	5.5
37-38	....	....	....	....	5
38	....	....	....	....	5
39	....	....	....	....	5
40	....	....	....	....	5
41	....	....	....	....	5

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation à partir de l'année incl.	jusqu'à l'année excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 29-30 ans.						
42		....	1	....	1	4.5
43		....	....	....	....	4
44		....	....	....	....	4
45		....	1	....	1	3.5
46		....	....	....	....	3
47		....	....	....	....	3
48		....	1	....	1	2.5
49		....	....	....	....	2
50		....	....	....	....	2
51		....	....	....	....	2
52		....	....	....	....	2
53		....	....	....	....	2
54		....	....	....	....	2
55		....	....	....	....	2
56		....	....	1	1	1.5
57		....	....	....	....	1
58		....	....	....	....	1
59		....	....	....	....	1
60		....	....	....	....	1
61		....	....	....	....	1
62		....	....	....	....	1
63		....	....	....	....	1
64		....	....	....	....	1
65		....	....	....	....	1
66		....	....	....	....	1
67		....	....	....	....	1
68		....	....	....	....	1
69		....	....	....	....	1
70-71		....	....	1	1	0.5
		....	6	7	13	134
Age d'entrée: 30-31 ans.						
30-31		....	....	1	1	10.5
31		....	3	2	5	18.5
32		1	....	....	1	16
33		....	....	....	....	15
34		....	1	2	3	13.5
35		....	1	1	2	11
36		....	1	....	1	9.5
37		....	....	....	....	9
38		....	....	....	....	9
39		....	....	....	....	9
40		....	....	1	1	8.5
41		....	....	....	....	8
42		....	....	....	....	8
43		....	....	....	....	8
44		....	....	....	....	8
45		....	....	....	....	8
46		....	....	....	....	8
47		....	....	2	2	7
48		....	....	....	....	6
49		....	....	....	....	6
50		....	....	....	....	6
51		....	....	....	....	6

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation à partir de l'année jusqu'à l'année incl. excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 30-31 ans.					
52	....	....	....	....	6
53	....	....	....	....	6
54	....	....	....	....	6
55	....	....	....	....	6
56	1	....	....	1	6
57	....	....	....	....	5
58	....	....	1	1	4.5
59	....	....	....	....	4
60	....	....	....	....	4
61	....	....	1	1	3.5
62	....	....	1	1	2.5
63	....	....	1	1	1.5
64	....	....	....	....	1
65	....	....	....	....	1
66-67	....	....	1	1	0.5
	2	6	14	22	266
Age d'entrée: 31-32 ans.					
31-32	....	1	1	2	11.5
32	1	....	....	1	23
33	....	1	2	3	20.5
34	....	....	....	....	19
35	....	....	2	2	18
36	....	....	1	1	16.5
37	....	....	2	2	15
38	....	....	1	1	13.5
39	....	2	1	3	11.5
40	....	....	....	....	10
41	....	....	1	1	9.5
42	....	....	....	....	9
43	....	1	....	1	8.5
44	1	....	....	1	8
45	....	....	1	1	6.5
46	....	....	....	....	6
47	....	....	....	....	6
48	....	....	....	....	6
49	....	....	1	1	5.5
50	1	....	....	1	5
51	....	....	....	....	4
52	....	....	2	2	3
53	....	....	....	....	2
54	....	....	....	....	2
55	....	....	....	....	2
56	....	....	....	....	2
57	....	....	....	....	2
58	....	....	1	1	1.5
59	....	....	....	....	1
60	....	....	....	....	1
61	....	....	....	....	1
62	....	....	....	....	1
63	....	....	....	....	1
64	....	....	....	....	1

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation à partir de l'année incl.	jusqu'à l'année excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
			Age d'entrée: 31-32 ans.			
65		....	....	....	....	1
66		....	....	....	....	1
67	68	....	....	1	1	0.5
		3	5	17	25	255.5
			Age d'entrée: 32-33 ans.			
32	33	1	....	1	2	9.5
33		....	1	1	2	17
34		....	....	3	3	14.5
35		....	....	1	1	12.5
36		1	....	1	2	11.5
37		....	....	....	....	10
38		....	....	1	1	9.5
39		....	....	....	....	9
40		....	....	....	....	9
41		....	....	1	1	8.5
42		....	....	....	....	8
43		....	1	....	1	7.5
44		....	....	....	....	7
45		....	1	....	1	6.5
46		....	....	1	1	5.5
47		....	....	....	....	5
48		1	....	....	1	5
49		....	....	....	....	4
50		....	....	....	....	4
51		....	....	....	....	4
52		....	....	....	....	4
53		....	....	....	....	4
54		....	....	....	....	4
55		....	....	....	....	4
56		....	....	....	....	4
57		....	....	....	....	4
58		....	....	....	....	4
59		....	....	1	1	3.5
60		....	....	....	....	3
61		....	....	....	....	3
62		....	....	1	1	2.5
63		....	....	1	1	1.5
64		....	....	....	....	1
65		....	....	....	....	1
66		....	....	....	....	1
67		....	....	....	....	1
68	69	....	....	1	1	0.5
		3	3	14	20	213.5
			Age d'entrée: 33-34 ans.			
33	34	....	....	....	....	13
34		....	2	....	2	25
35		....	....	1	1	23.5
36		....	1	....	1	22.5
37		....	2	....	2	21
38		....	....	....	....	20
39		....	....	....	....	20

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation à partir de l'année incl.	jusqu'à l'année excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
			Age d'entrée: 33-34 ans.			
40		....	1	....	1	19.5
41		1	1	....	2	18.5
42		....	....	....	....	17
43		1	....	1	2	16.5
44		....	....	1	1	14.5
45		....	....	1	1	13.5
46		....	....	1	1	12.5
47		....	....	....	....	12
48		....	....	....	....	12
49		....	....	1	1	11.5
50		....	....	....	....	11
51		....	....	1	1	10.5
52		....	....	....	....	10
53		1	....	1	2	9.5
54		....	....	....	....	8
55		....	1	....	1	7.5
56		....	....	1	1	6.5
57		1	....	....	1	6
58		....	....	....	....	5
59		....	....	....	....	5
60		....	....	....	....	5
61		....	....	....	....	5
62		....	....	....	....	5
63		....	....	1	1	4.5
64		....	....	1	1	3.5
65		....	....	....	....	3
66		1	....	....	1	3
67		1	....	....	1	2
68		....	....	....	....	1
69-70		....	....	1	1	0.5
		6	8	12	26	404
			Age d'entrée: 34-35 ans.			
34-35		....	....	3	3	9.5
35		....	1	1	2	18
36		....	....	....	....	17
37		....	1	2	3	15.5
38		1	....	1	2	13.5
39		....	....	1	1	11.5
40		1	....	2	3	10
41		....	....	....	....	8
42		....	1	....	1	7.5
43		....	....	....	....	7
44		....	....	....	....	7
45		....	....	....	....	7
46		....	....	2	2	6
47		....	....	....	....	5
48		....	....	....	....	5
49		....	....	1	1	4.5
50		....	....	....	....	4
51		....	....	....	....	4
52		....	....	....	....	4
53		....	....	....	....	4
54		1	....	1	2	3.5
55		....	....	1	1	1.5

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation	2	3	4	5	6
à partir de l'année incl. / jusqu'à l'année excl.	Nombre des décès	Nombre des sorties	Nombre des assurés le 31 décbre, 1899	Somme des colonnes 2, 3 et 4	Nombre de têtes exposées au risque
Age d'entrée: 34-35 ans.					
56	....	....	....	....	1
57	....	....	....	....	1
58	....	....	....	....	1
59	....	....	....	....	1
60	....	....	....	....	1
61	....	....	....	....	1
62	....	....	....	....	1
63	....	....	....	....	1
64	....	....	....	....	1
65	....	....	....	....	1
66	....	....	....	....	1
67	....	....	....	....	1
68-69	....	....	1	1	0.5
	3	3	16	22	185.5
Age d'entrée: 35-36 ans.					
35-36	....	....	2	2	10.5
36	....	1	1	2	20
37	....	....	1	1	18.5
38	....	1	1	2	17
39	....	....	....	....	16
40	....	....	1	1	15.5
41	....	....	1	1	14.5
42	....	....	1	1	13.5
43	....	....	....	....	13
44	....	....	....	....	13
45	....	....	1	1	12.5
46	....	....	....	....	12
47	....	....	1	1	11.5
48	1	1	....	2	10.5
49	....	....	....	....	9
50	....	....	....	....	9
51	....	....	....	....	9
52	....	....	....	....	9
53	....	....	1	1	8.5
54	....	1	....	1	7.5
55	....	....	....	....	7
56	....	....	1	1	6.5
57	....	....	....	....	6
58	....	....	1	1	5.5
59	....	....	....	....	5
60	1	....	....	1	5
61	....	....	....	....	4
62	1	....	....	1	4
63	....	....	1	1	2.5
64	....	....	....	....	2
65	....	....	....	....	2
66	....	1	....	1	1.5
67	....	....	....	....	1
68	....	....	....	....	1
69	....	....	....	....	1
70	....	....	....	....	1
71-72	....	....	1	1	0.5
	3	5	15	23	305.5

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation à partir de l'année / jusqu'à l'année incl. excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 36-37 ans.					
36-37	....	....	....	....	15.5
37	1	1	....	2	30.5
38	....	1	1	2	28
39	....	....	1	1	26.5
40	....	....	3	3	24.5
41	....	....	1	1	22.5
42	....	....	1	1	21.5
43	....	1	1	2	20
44	....	....	....	....	19
45	....	1	....	1	18.5
46	....	1	1	2	17
47	....	....	....	....	16
48	....	....	2	2	15
49	....	....	....	....	14
50	....	....	....	....	14
51	....	....	1	1	13.5
52	....	....	....	....	13
53	....	....	1	1	12.5
54	....	....	....	....	12
55	....	....	1	1	11.5
56	....	....	....	....	11
57	....	....	....	....	11
58	....	....	....	....	11
59	....	....	1	1	10.5
60	1	....	2	3	9
61	....	1	....	1	6.5
62	....	....	....	....	6
63	....	....	....	....	6
64	....	....	....	....	6
65	1	....	....	1	6
66	....	....	1	1	4.5
67	....	....	1	1	3.5
68	....	....	....	....	3
69	1	....	....	1	3
70	....	....	1	1	1.5
71	....	....	....	....	1
72	....	....	....	....	1
73-74	....	....	1	1	0.5
	4	6	21	31	466
Age d'entrée: 37-38 ans.					
37-38	....	....	....	....	17.5
38	....	2	....	2	34
39	....	....	1	1	32.5
40	....	....	2	2	31
41	....	1	3	4	28
42	....	....	....	....	26
43	....	....	2	2	25
44	1	1	2	4	22.5
45	....	....	....	....	20
46	....	2	1	3	18.5
47	....	....	1	1	16.5
48	....	....	2	2	15
49	....	....	....	....	14

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation à partir de l'année jusqu'à l'année incl. excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 37-38 ans.					
50	....	....	2	2	13
51	....	....	....	....	12
52	....	....	....	....	12
53	....	....	....	....	12
54	....	....	....	....	12
55	....	....	....	....	12
56	....	....	1	1	11.5
57	....	....	....	....	11
58	....	....	1	1	10.5
59	....	....	....	....	10
60	1	....	1	2	9.5
61	....	....	1	1	7.5
62	....	....	....	....	7
63	....	1	....	1	6.5
64	....	....	1	1	5.5
65	....	....	....	....	5
66	....	....	....	....	5
67	2	....	1	3	4.5
68	1	....	....	1	2
69	....	....	....	....	1
70-71	....	....	1	1	0.5
	5	7	23	35	470.5
Age d'entrée: 38-39 ans.					
38-39	....	....	2	2	16
39	....	3	4	7	28.5
40	....	1	....	1	24.5
41	....	....	....	....	24
42	....	....	1	1	23.5
43	1	1	1	3	22
44	....	....	1	1	19.5
45	....	....	1	1	18.5
46	....	....	1	1	17.5
47	....	1	....	1	16.5
48	1	1	3	5	14
49	....	....	....	....	11
50	....	1	....	1	10.5
51	....	....	....	....	10
52	....	....	1	1	9.5
53	1	....	....	1	9
54	1	....	....	1	8
55	....	....	1	1	6.5
56	....	....	1	1	5.5
57	....	....	....	....	5
58	....	....	....	....	5
59	....	....	....	....	5
60	....	....	....	....	5
61	....	....	....	....	5
62	....	....	....	....	5
63	....	1	....	1	4.5
64	....	....	....	....	4
65	....	....	1	1	3.5
66	....	....	....	....	3
67	1	....	....	1	3

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation à partir de l'année incl.	jusqu'à l'année excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
			Age d'entrée: 38-39 ans.			
68		....	....	....	....	2
69		....	....	....	....	2
70		....	....	1	1	1.5
71		....	....	....	....	1
72		....	....	....	....	1
73		....	....	....	....	1
74		....	....	....	....	1
75		....	....	....	....	1
76		....	....	....	....	1
77-78		....	....	1	1	0.5
		5	9	20	34	354.5
			Age d'entrée: 39-40 ans.			
39-40		....	2	....	2	19.5
40		....	3	2	5	36.5
41		....	1	1	2	33
42		1	2	2	5	30
43		1	....	....	1	27
44		....	....	2	2	25
45		....	....	....	....	24
46		....	1	....	1	23.5
47		....	....	....	....	23
48		....	....	....	....	23
49		....	1	2	3	21.5
50		....	....	....	....	20
51		....	....	....	....	20
52		....	....	....	....	20
53		2	....	1	3	19.5
54		....	....	....	....	17
55		....	....	2	2	16
56		....	....	....	....	15
57		....	....	1	1	14.5
58		....	....	....	....	14
59		....	....	1	1	13.5
60		....	....	....	....	13
61		....	....	....	....	13
62		....	....	1	1	12.5
63		....	1	2	3	10.5
64		1	....	....	1	9
65		....	....	....	....	8
66		....	....	....	....	8
67		....	....	3	3	6.5
68		1	....	1	2	4.5
69		....	....	....	....	3
70		....	....	....	....	3
71		....	....	....	....	3
72		....	....	....	....	3
73		....	....	....	....	3
74		....	....	....	....	3
75		....	....	....	....	3
76		....	....	1	1	2.5
77		....	....	....	....	2
78-79		....	....	2	2	1
		6	11	24	41	567

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation à partir de l'année incl.	jusqu'à l'année excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
			Age d'entrée: 40-41 ans.			
40	41	....	1	4	5	23.5
41	42	1	1	3	5	45
42	43	....	3	4	7	38.5
43	44	....	....	2	2	34
44	45	....	1	1	2	32
45	46	....	....	2	2	30
46	47	....	3	1	4	27
47	48	....	....	1	1	24.5
48	49	1	....	4	5	22
49	50	....	....	1	1	18.5
50	51	....	....	4	4	16
51	52	1	1	1	3	13
52	53	....	....	1	1	10.5
53	54	....	....	....	....	10
54	55	....	....	1	1	9.5
55	56	....	....	....	....	9
56	57	1	....	....	1	9
57	58	....	....	....	....	8
58	59	....	....	....	....	8
59	60	....	....	1	1	7.5
60	61	....	....	....	....	7
61	62	....	....	1	1	6.5
62	63	....	....	....	....	6
63	64	....	....	....	....	6
64	65	....	....	....	....	6
65	66	....	....	....	....	6
66	67	....	....	....	....	6
67	68	....	....	1	1	5.5
68	69	....	....	....	....	5
69	70	....	....	1	1	4.5
70	71	....	....	....	....	4
71	72	1	....	....	1	4
72	73	....	....	....	....	3
73	74	....	....	1	1	2.5
74	75	....	....	....	....	2
75	76	....	....	....	....	2
76	77	....	....	....	....	2
77	78	....	....	....	....	2
78	79	....	....	1	1	1.5
79	80	....	....	1	1	0.5
		5	10	37	52	477.5
			Age d'entrée: 41-42 ans.			
41	42	....	....	2	2	22
42	43	1	4	4	9	40
43	44	1	4	2	7	32
44	45	....	2	3	5	25.5
45	46	....	....	1	1	22.5
46	47	....	....	1	1	21.5
47	48	....	....	2	2	20
48	49	1	....	....	1	19
49	50	....	1	....	1	17.5
50	51	....	1	1	2	16
51	52	....	1	1	2	14

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation à partir de l'année jusqu'à l'année incl. excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 41-42 ans.					
52	1	....	2	3	12
53	....	....	....	....	10
54	....	....	....	....	10
55	....	....	....	....	10
56	....	....	....	....	10
57	....	....	....	....	10
58	....	....	....	....	10
59	....	....	2	2	9
60	1	....	....	1	8
61	....	....	2	2	6
62	....	....	....	....	5
63	....	....	....	....	5
64	....	....	....	....	5
65	1	....	....	1	5
66	....	....	....	....	4
67	....	....	....	....	4
68	....	....	....	....	4
69-70	3	....	1	4	3.5
	9	13	24	46	380.5
Age d'entrée: 42-43 ans.					
42-43	....	1	....	1	20
43	....	2	5	7	36.5
44	1	2	3	6	30.5
45	....	3	2	5	24.5
46	....	....	4	4	20
47	....	....	....	....	18
48	....	....	2	2	17
49	1	....	1	2	15.5
50	....	....	1	1	13.5
51	....	1	1	2	12
52	....	....	1	1	10.5
53	....	....	....	....	10
54	....	....	....	....	10
55	1	....	....	1	10
56	....	....	1	1	8.5
57	....	....	....	....	8
58	....	....	....	....	8
59	....	....	....	....	8
60	1	....	....	1	8
61	....	....	2	2	6
62	....	....	....	....	5
63	....	....	....	....	5
64	....	....	1	1	4.5
65	....	....	....	....	4
66	....	....	1	1	3.5
67	....	....	....	....	3
68	....	....	1	1	2.5
69	....	....	1	1	1.5
70	....	....	....	....	1
71	....	....	....	....	1
72	....	....	....	....	1
73	....	....	....	....	1
74	....	....	....	....	1

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation à partir de l'année jusqu'à l'année Incl. excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 42-43 ans.					
75	....	....	....	....	1
76	....	....	....	....	1
77	....	....	....	....	1
78-79	....	....	1	1	0.5
	4	9	28	41	332
Age d'entrée: 43-44 ans.					
43-44	....	1	....	1	21
44	....	2	1	3	40.5
45	1	4	2	7	36
46	....	1	2	3	30.5
47	1	1	2	4	27.5
48	....	....	1	1	24.5
49	....	1	1	2	23
50	....	1	1	2	21
51	....	....	....	....	20
52	....	....	1	1	19.5
53	1	....	....	1	19
54	....	....	....	....	18
55	....	....	....	....	18
56	2	....	....	2	18
57	....	....	1	1	15.5
58	2	....	....	2	15
59	1	....	3	4	11.5
60	....	....	....	....	9
61	1	....	....	1	9
62	....	....	....	....	8
63	....	....	....	....	8
64	....	....	1	1	7.5
65	....	....	1	1	6.5
66	....	....	....	....	6
67	....	....	....	....	6
68	1	....	....	1	6
69	....	....	1	1	4.5
70	....	....	....	....	4
71	1	....	....	1	4
72	....	....	....	....	3
73	....	....	....	....	3
74	....	....	1	1	2.5
75	....	....	....	....	2
76	....	....	....	....	2
77	1	....	....	1	2
78	....	....	....	....	1
79	....	....	....	....	1
80-81	....	....	1	1	0.5
	12	11	20	43	474
Age d'entrée: 44-45 ans.					
44-45	....	....	....	....	37.5
45	....	7	5	12	69
46	....	1	2	3	61.5
47	1	2	4	7	57
48	....	2	4	6	50

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation à partir de l'année incl.	jusqu'à l'année excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
			Age d'entrée: 44-45 ans.			
49		....	1	6	7	43.5
50		....	2	1	3	38.5
51		....	2	1	3	35.5
52		1	2	2	5	32
53		2	....	1	3	28.5
54		....	....	5	5	23.5
55		....	....	1	1	20.5
56		....	....	....	....	20
57		1	....	2	3	19
58		....	1	1	2	16
59		1	....	1	2	14.5
60		....	....	1	1	12.5
61		....	1	....	1	11.5
62		....	....	1	1	10.5
63		2	....	1	3	9.5
64		....	....	1	1	6.5
65		1	....	....	1	6
66		....	....	1	1	4.5
67		....	....	....	....	4
68		....	....	....	....	4
69		....	....	....	....	4
70		....	....	....	....	4
71		....	....	....	....	4
72		1	....	....	1	4
73		....	....	1	1	2.5
74-75		2	....	....	2	2
		12	21	42	75	656
			Age d'entrée: 45-46 ans.			
45-46		....	1	....	1	39.5
46		....	7	6	13	72.5
47		2	2	2	6	64
48		....	2	4	6	57
49		2	3	3	8	51
50		....	1	3	4	44
51		....	3	....	3	40.5
52		....	1	1	2	38
53		....	....	2	2	36
54		....	2	....	2	34
55		1	2	3	6	30.5
56		1	....	2	3	26
57		....	....	1	1	23.5
58		3	....	1	4	22.5
59		1	....	....	1	19
60		1	1	....	2	17.5
61		....	....	1	1	15.5
62		....	....	....	....	15
63		....	....	1	1	14.5
64		....	....	2	2	13
65		1	....	1	2	11.5
66		1	....	1	2	9.5
67		....	....	1	1	7.5
68		....	....	1	1	6.5
69		....	....	....	....	6

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation à partir de l'année jusqu'à l'année incl. excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 45-46 ans.					
70	....	....	....	....	6
71	....	....	1	1	5.5
72	....	....	....	....	5
73	1	....	....	1	5
74	1	....	1	2	3.5
75	....	....	....	....	2
76	....	....	1	1	1.5
77	....	....	....	....	1
78	....	....	....	....	1
79	....	....	....	....	1
80-81	1	....	....	1	1
	16	25	39	80	747
Age d'entrée: 46-47 ans.					
46-47	....	....	....	....	36
47	....	5	1	6	69
48	....	1	3	4	64
49	....	....	8	8	58
50	1	2	3	6	51.5
51	....	1	3	4	46
52	1	....	2	3	43
53	....	4	3	7	37.5
54	1	2	....	3	33
55	3	1	2	6	29.5
56	....	1	3	4	23
57	....	....	....	....	21
58	....	....	1	1	20.5
59	....	....	....	....	20
60	....	1	1	2	19
61	....	....	3	3	16.5
62	1	....	1	2	14.5
63	....	....	....	....	13
64	....	....	....	....	13
65	....	....	1	1	12.5
66	1	....	....	1	12
67	1	....	1	2	10.5
68	....	....	2	2	8
69	1	....	1	2	6.5
70	....	....	....	....	5
71	....	....	....	....	5
72	....	....	....	....	5
73	....	....	1	1	4.5
74	....	....	....	....	4
75	....	....	....	....	4
76	....	....	....	....	4
77	....	....	....	....	4
78	....	....	1	1	3.5
79	1	....	....	1	3
80	....	....	1	1	1.5
81	....	....	....	....	1
82-83	....	....	1	1	0.5
	11	18	43	72	722.5

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation à partir de l'année incl.	jusqu'à l'année excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
			Age d'entrée: 47-48 ans.			
47-48		....	....	1	1	34
48		1	6	3	10	63.5
49		....	4	1	5	55.5
50		....	2	1	3	51.5
51		....	3	1	4	48
52		....	1	2	3	44.5
53		....	....	2	2	42
54		....	....	5	5	38.5
55		1	....	2	3	35
56		....	....	1	1	32.5
57		....	1	4	5	29.5
58		....	....	3	3	25.5
59		1	....	3	4	22.5
60		....	....	3	3	18.5
61		1	....	1	2	16.5
62		1	....	1	2	14.5
63		....	....	....	....	13
64		1	....	....	1	13
65		....	....	2	2	11
66		....	1	1	2	9
67		1	....	....	1	8
68		1	....	1	2	6.5
69		....	....	....	....	5
70		....	....	1	1	4.5
71		....	....	....	....	4
72		....	....	....	....	4
73		....	....	....	....	4
74		....	....	....	....	4
75		....	....	....	....	4
76		....	....	....	....	4
77		1	....	1	2	3.5
78		....	....	....	....	2
79		1	....	....	1	2
80		....	....	....	....	1
81		....	....	....	....	1
82		....	....	....	....	1
83-84		....	....	1	1	0.5
		10	18	41	69	677
			Age d'entrée: 48-49 ans.			
48-49		....	....	1	1	38.5
49		1	7	....	8	73.5
50		....	7	1	8	65
51		....	2	3	5	58.5
52		....	4	4	8	52
53		1	1	2	4	46.5
54		....	....	2	2	43
55		....	....	3	3	40.5
56		2	....	2	4	38
57		....	1	3	4	33
58		....	1	2	3	29.5
59		....	....	3	3	26.5
60		....	....	1	1	24.5
61		2	....	....	2	24

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation à partir de l'année incl.	jusqu'à l'année excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
			Age d'entrée: 48-49 ans.			
62		....	1	2	3	20.5
63		1	....	1	2	18.5
64		....	....	2	2	16
65		....	....	2	2	14
66		....	....	....	....	13
67		1	....	1	2	12.5
68		1	....	2	3	10
69		....	....	....	....	8
70		....	1	....	1	7.5
71		....	....	....	....	7
72		....	....	1	1	6.5
73		....	....	1	1	5.5
74		....	....	1	1	4.5
75		....	....	....	....	4
76		2	....	....	2	4
77		1	....	....	1	2
78		....	....	....	....	1
79		....	....	....	....	1
80		....	....	....	....	1
81-82		....	....	1	1	0.5
		12	25	41	78	750
			Age d'entrée: 49-50 ans.			
49-50		....	....	....	....	50.5
50		1	7	5	13	95
51		....	4	6	10	83
52		....	3	4	7	74.5
53		....	2	3	5	68.5
54		1	1	3	5	64
55		....	1	1	2	60
56		1	2	2	5	57
57		....	....	5	5	51.5
58		1	1	4	6	46.5
59		1	1	7	9	39
60		1	1	3	5	32
61		....	....	1	1	28.5
62		....	....	1	1	27.5
63		....	2	2	4	25
64		1	....	1	2	22.5
65		1	....	1	2	20.5
66		....	....	1	1	18.5
67		3	....	1	4	17.5
68		2	....	....	2	14
69		....	....	3	3	10.5
70		....	....	....	....	9
71		....	1	....	1	8.5
72		....	....	1	1	7.5
73		....	....	1	1	6.5
74		....	....	....	....	6
75		1	....	....	1	6
76		....	....	....	....	5
77		1	....	....	1	5
78		2	....	....	2	4
79		....	....	....	....	2

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation à partir de l'année jusqu'à l'année incl. excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
		Age d'entrée: 49-50 ans.			
80	1	....	....	1	2
81	....	....	....	....	1
82	....	....	....	....	1
83	....	....	....	....	1
84	....	....	....	....	1
85	....	....	....	....	1
86	....	....	....	....	1
87-88	....	....	1	1	0.5
	18	26	57	101	974
		Age d'entrée: 50-51 ans.			
50-51	1	....	6	7	77
51	1	12	12	25	141
52	2	4	8	14	122
53	....	9	6	15	106.5
54	1	1	5	7	96
55	3	5	5	13	87
56	....	1	4	5	76.5
57	1	4	4	9	70
58	....	4	1	5	62.5
59	1	1	5	7	57
60	4	1	6	11	49.5
61	2	1	1	4	41
62	1	1	1	3	37
63	2	1	1	4	34
64	1	1	2	4	29.5
65	1	....	1	2	26.5
66	2	....	....	2	25
67	....	....	3	3	21.5
68	2	....	2	4	19
69	2	....	....	2	16
70	1	....	....	1	14
71	....	....	1	1	12.5
72	1	....	....	1	12
73	1	....	1	2	10.5
74	....	....	1	1	8.5
75	....	....	....	....	8
76	....	....	....	....	8
77	1	....	....	1	8
78	2	....	....	2	7
79	....	....	....	....	5
80	2	....	....	2	5
81	....	....	....	....	3
82	....	....	....	....	3
83	2	....	....	2	3
84	....	....	....	....	1
85	....	....	....	....	1
86-87	1	....	....	1	1
	38	46	76	160	1305
		Age d'entrée: 51-52 ans.			
51-52	....	1	4	5	53
52	1	18	7	26	93.5
53	1	4	5	10	75.5

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation à partir de l'année jusqu'à l'année incl. excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
		Age d'entrée: 51-52 ans.			
54	1	1	1	3	69
55	2	3	6	11	62.5
56	....	1	2	3	54.5
57	1	2	1	4	51.5
58	2	1	1	4	48
59	1	2	2	5	43
60	1	2	1	4	38.5
61	1	....	4	5	34
62	3	1	2	6	29.5
63	1	....	1	2	24.5
64	1	....	....	1	23
65	....	....	....	....	22
66	....	....	....	....	22
67	....	....	2	2	21
68	2	....	1	3	19.5
69	3	....	....	3	17
70	1	....	1	2	13.5
71	1	....	1	2	11.5
72	....	....	1	1	9.5
73	....	....	....	....	9
74	1	....	....	1	9
75	....	....	1	1	7.5
76	....	....	1	1	6.5
77	....	....	....	....	6
78	....	....	....	....	6
79	1	....	1	2	5.5
80	1	....	....	1	4
81	1	....	....	1	3
82	....	....	....	....	2
83	....	....	1	1	1.5
84-85	1	....	....	1	1
	28	36	47	111	897
		Age d'entrée: 52-53 ans.			
52-53	....	....	2	2	58.5
53	....	12	13	25	104.5
54	1	5	8	14	85.5
55	2	3	8	13	72.5
56	1	1	6	8	61.5
57	1	3	6	10	52.5
58	1	1	3	5	45
59	....	3	1	4	40
60	2	1	3	6	36
61	1	....	1	2	31.5
62	1	2	4	7	27
63	....	1	4	5	20.5
64	....	....	1	1	17.5
65	1	1	1	3	16
66	....	....	....	....	14
67	1	....	....	1	14
68	1	....	....	1	13
69	....	....	1	1	11.5
70	1	....	....	1	11
71	....	....	1	1	9.5
72	....	....	2	2	8

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation à partir de l'année incl.	jusqu'à l'année excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 52-53 ans.						
73		1	....	....	1	7
74		....	....	....	....	6
75		1	....	....	1	6
76		2	....	....	2	5
77		1	....	....	1	3
78		1	....	....	1	2
79-80		1	....	....	1	1
		21	33	65	119	779.5
Age d'entrée: 53-54 ans.						
53-54		....	....	1	1	59.5
54		1	16	7	24	107.5
55		....	8	1	9	90.5
56		3	3	7	13	81
57		1	6	6	13	67
58		3	3	5	11	56
59		....	2	1	3	47.5
60		1	2	3	6	43.5
61		....	3	3	6	37
62		1	....	1	2	33.5
63		1	1	4	6	29.5
64		1	....	1	2	25.5
65		3	1	3	7	22
66		....	2	1	3	15.5
67		2	....	1	3	13.5
68		1	....	1	2	10.5
69		....	2	....	2	8
70		....	....	....	....	7
71		....	1	....	1	6.5
72		1	....	1	2	5.5
73		....	....	....	....	4
74		....	....	....	....	4
75		....	....	1	1	3.5
76		1	....	1	2	2.5
77		....	....	....	....	1
78-79		1	....	....	1	1
		21	50	49	120	782.5
Age d'entrée: 54-55 ans.						
54-55		....	....	4	4	62
55		2	8	9	19	115.5
56		1	8	4	13	99
57		2	6	10	18	84
58		3	1	8	12	69.5
59		1	3	8	12	56.5
60		1	2	4	7	47
61		1	2	5	8	39.5
62		....	....	1	1	34.5
63		2	....	2	4	33
64		....	1	3	4	28
65		3	1	3	7	24
66		....	....	1	1	18.5

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation à partir de l'année incl.	jusqu'à l'année excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
			Age d'entrée: 54-55 ans.			
67		....	....	2	2	17
68		....	....	1	1	15.5
69		1	....	....	1	15
70		1	....	....	1	14
71		....	1	....	1	12.5
72		....	....	1	1	11.5
73		2	....	....	2	11
74		....	....	....	....	9
75		2	....	1	3	8.5
76		....	....	1	1	5.5
77		....	....	2	2	4
78		1	....	....	1	3
79		....	....	1	1	1.5
80		....	....	....	....	1
81		....	....	....	....	1
82-83		1	....	....	1	1
		24	33	71	128	842
			Age d'entrée: 55-56 ans.			
55-56		2	....	2	4	75.5
56		1	7	8	16	141.5
57		2	7	10	19	124.5
58		1	3	13	17	106
59		2	4	11	17	89.5
60		1	2	6	9	76
61		3	5	4	12	66.5
62		3	....	2	5	58
63		....	2	4	6	51
64		1	....	4	5	46
65		1	3	4	8	39.5
66		....	....	3	3	33.5
67		....	....	4	4	30
68		3	1	3	7	26
69		1	....	2	3	20
70		1	1	....	2	17.5
71		....	....	2	2	15
72		....	....	....	....	14
73		....	....	2	2	13
74		3	....	2	5	11
75		....	....	....	....	7
76		1	....	....	1	7
77		1	....	....	1	6
78		....	....	....	....	5
79		1	....	....	1	5
80		1	....	....	1	4
81		2	....	....	2	3
82-83		1	....	....	1	1
		32	35	86	153	1092
			Age d'entrée: 56-57 ans.			
56-57		....	....	....	....	70.5
57		2	13	10	25	129.5
58		....	9	3	12	110

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation à partir de l'année jusqu'à l'année incl. excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 56-57 ans.					
59	5	2	5	12	100.5
60	....	4	5	9	87.5
61	2	4	4	10	79
62	....	2	3	5	70.5
63	3	2	4	9	65
64	1	1	....	2	58.5
65	2	1	3	6	55
66	2	1	6	9	47.5
67	1	....	3	4	40.5
68	1	....	4	5	36
69	3	1	1	5	32
70	2	....	1	3	27.5
71	3	1	1	5	24
72	1	....	2	3	19
73	3	....	1	4	16.5
74	2	....	....	2	13
75	....	....	....	....	11
76	....	....	1	1	10.5
77	....	....	....	....	10
78	....	....	1	1	9.5
79	1	....	....	1	9
80	1	....	1	2	7.5
81	....	....	....	....	6
82	2	....	....	2	6
83	2	....	1	3	3.5
84	....	....	....	....	1
85	....	....	....	....	1
86	....	....	....	....	1
87	....	....	....	....	1
88	....	....	....	....	1
89	....	....	....	....	1
90	....	....	....	....	1
91-92	1	....	....	1	1
	40	41	60	141	1163
Age d'entrée: 57-58 ans.					
57-58	....	....	8	8	80
58	2	15	11	28	147
59	1	9	9	19	123
60	4	6	13	23	103.5
61	2	5	13	20	81
62	....	3	6	9	65.5
63	2	3	3	8	58
64	3	3	2	8	50.5
65	1	1	3	5	43
66	....	....	4	4	38
67	1	1	5	7	33
68	....	1	....	1	28.5
69	1	....	3	4	26.5
70	....	....	2	2	23
71	1	1	....	2	21.5
72	....	1	2	3	18.5
73	....	1	3	4	15
74	1	....	2	3	12

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation à partir de l'année jusqu'à l'année incl. excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 57-58 ans.					
75	3	....	1	4	9.5
76	1	....	1	2	5.5
77	....	....	1	1	3.5
78	....	....	....	....	3
79	....	....	....	....	3
80	....	....	....	....	3
81	....	....	....	....	3
82	....	....	1	1	2.5
83	....	....	....	....	2
84	1	....	....	1	2
85-86	1	....	....	1	1
	25	50	93	168	1005.5
Age d'entrée: 58-59 ans.					
58-59	1	....	6	7	66.5
59	1	18	11	30	117.5
60	1	9	6	16	94.5
61	1	4	5	10	81.5
62	2	2	9	13	70.5
63	....	3	7	10	58
64	....	2	4	6	50
65	2	1	3	6	45
66	3	2	2	7	39
67	1	2	5	8	30.5
68	1	....	2	3	25
69	2	....	2	4	22
70	2	....	1	3	18.5
71	....	....	2	2	15
72	1	1	1	3	13
73	1	....	....	1	11
74	1	....	1	2	9.5
75	....	....	2	2	7
76	1	....	....	1	6
77	....	....	....	....	5
78	....	....	....	....	5
79	1	....	1	2	4.5
80	....	....	....	....	3
81	....	....	....	....	3
82	1	....	....	1	3
83	1	....	....	1	2
84-85	1	....	....	1	1
	25	44	70	139	806.5
Age d'entrée: 59-60 ans.					
59-60	1	1	5	7	80
60	2	16	16	34	143
61	1	7	8	16	117.5
62	3	5	6	14	103.5
63	3	4	6	13	90
64	4	2	3	9	79.5
65	4	3	6	13	68.5
66	4	....	2	6	59
67	4	1	2	7	52.5

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation à partir de l'année incl.	jusqu'à l'année excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 59-60 ans.						
68		....	....	1	1	46.5
69		....	....	7	7	42.5
70		4	1	3	8	37
71		....	1	2	3	29.5
72		3	....	3	6	26.5
73		....	....	3	3	20.5
74		2	....	1	3	18.5
75		1	....	2	3	15
76		4	....	1	5	12.5
77		....	....	1	1	7.5
78		1	....	....	1	7
79		2	....	....	2	6
80		1	....	....	1	4
81		....	....	....	....	3
82		2	....	....	2	3
83		....	....	....	....	1
84		....	....	....	....	1
85-86		1	....	....	1	1
		47	41	78	166	1075.5
Age d'entrée: 60-61 ans.						
60-61		2	....	6	8	107
61		5	14	7	26	201.5
62		4	10	8	22	177
63		5	10	10	25	154
64		7	6	10	23	131
65		2	3	6	11	111.5
66		....	5	10	15	97.5
67		3	....	2	5	89
68		2	1	4	7	82.5
69		2	2	8	12	73
70		8	1	7	16	62
71		2	1	5	8	47
72		3	....	8	11	38
73		1	....	....	1	31
74		4	....	2	6	29
75		1	....	3	4	22.5
76		1	....	1	2	19.5
77		1	....	1	2	17.5
78		4	....	1	5	15.5
79		2	....	....	2	11
80		3	....	....	3	9
81		1	....	1	2	5.5
82		1	....	....	1	4
83		....	....	....	....	3
84		1	....	....	1	3
85		....	....	....	....	2
86		....	....	....	....	2
87		....	....	1	1	1.5
88-89		....	....	1	1	0.5
		65	53	102	220	1547.5

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation à partir de l'année jusqu'à l'année incl. excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre, 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 61-62 ans.					
61-62	2	....	7	9	87.5
62	4	15	17	36	157
63	4	7	11	22	128
64	5	3	8	16	109.5
65	4	5	1	10	96
66	5	2	5	12	85.5
67	2	4	5	11	72.5
68	3	4	3	10	62.5
69	8	2	5	15	52.5
70	5	....	2	7	40
71	1	1	3	5	32
72	2	....	2	4	28
73	1	....	1	2	24.5
74	1	....	2	3	22
75	1	....	....	1	20
76	4	....	....	4	19
77	3	....	....	3	15
78	2	....	2	4	11
79	1	....	....	1	8
80	4	....	1	5	6.5
81	....	....	1	1	1.5
82-83	1	....	....	1	1
	63	43	76	182	1079.5
Age d'entrée: 62-63.					
62-63	3	....	8	11	91
63	2	17	14	33	163.5
64	4	7	11	22	137
65	4	5	8	17	117.5
66	2	4	4	10	103
67	3	5	6	14	91.5
68	1	2	5	8	79.5
69	4	2	3	9	72.5
70	6	1	4	11	63.5
71	3	1	4	8	52.5
72	3	....	6	9	44
73	2	....	3	5	36.5
74	4	....	1	5	32.5
75	3	....	1	4	27.5
76	4	....	....	4	24
77	1	....	2	3	19
78	2	....	....	2	17
79	3	....	....	3	15
80	2	....	1	3	11.5
81	2	....	....	2	9
82	2	....	1	3	6.5
83	....	....	....	....	4
84	1	....	....	1	4
85	1	....	....	1	3
86	....	....	....	....	2
87	....	....	....	....	2
88	....	....	....	....	2
89	....	....	....	....	2

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation à partir de l'année jusqu'à l'année incl. excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre, 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 62-63.					
90	....	....	....	....	2
91	....	....	....	....	2
92	....	....	....	....	2
93-94	2	....	....	2	2
	64	44	82	190	1241
Age d'entrée: 63-64					
63-64	....	....	4	4	89
64	2	15	18	35	161.5
65	7	6	7	20	136.5
66	7	4	10	21	116
67	8	4	7	19	96.5
68	1	2	3	6	80.5
69	3	2	2	7	75
70	3	1	7	11	66
71	5	....	4	9	57
72	1	2	5	8	46.5
73	....	1	5	6	39
74	1	....	3	4	34.5
75	1	....	1	2	31.5
76	4	....	2	6	29
77	1	....	1	2	23.5
78	4	....	1	5	21.5
79	4	....	....	4	17
80	1	....	....	1	13
81	3	....	....	3	12
82	1	1	....	2	8.5
83	2	....	....	2	7
84	....	....	....	....	5
85	....	....	1	1	4.5
86	2	....	....	2	4
87	....	....	....	....	2
88	....	....	....	....	2
89	1	....	....	1	2
90-91	1	....	....	1	1
	63	38	81	182	1181.5
Age d'entrée: 64-65.					
64-65	1	....	3	4	71.5
65	4	9	14	27	130.5
66	4	7	5	16	109
67	3	4	3	10	95.5
68	4	3	5	12	85

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation à partir de l'année incl.	jusqu'à l'année excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre, 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 64-65.						
69		1	3	6	10	72.5
70		1	1	2	4	65.5
71		3	....	2	5	62
72		3	1	3	7	56
73		2	....	4	6	49
74		3	2	8	13	40
75		3	1	4	8	29.5
76		2	....	1	3	23.5
77		2	....	1	3	20.5
78		1	....	1	2	17.5
79		....	....	3	3	14.5
80		....	....	....	....	13
81		2	....	....	2	13
82		4	....	....	4	11
83		....	....	2	2	6
84		1	....	1	2	4.5
85		1	....	....	1	3
86		....	....	....	....	2
87		....	....	....	....	2
88		1	....	....	1	2
89		....	....	....	....	1
90-91		1	....	....	1	1
		47	31	68	146	1000.5
Age d'entrée: 65-66.						
65-66		3	....	9	12	75.5
66		6	16	12	34	134
67		3	5	10	18	106.5
68		4	7	4	15	90.5
69		6	3	11	20	74
70		3	....	4	7	59
71		2	1	2	5	52.5
72		4	3	4	11	45.5
73		3	....	1	4	37.5
74		1	....	1	2	33.5
75		13	1	2	6	30.5
76		4	....	1	5	25.5
77		1	1	....	2	20.5
78		3	....	1	4	18.5
79		2	....	4	6	13
80		2	....	1	3	8.5
81		....	....	....	....	6
82		....	....	....	....	6

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation à partir de l'année incl.	jusqu'à l'année excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre, 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 65-66.						
83		1	....	....	1	6
84		2	....	....	2	5
85		....	....	....	....	3
86		....	....	1	1	2.5
87		....	....	....	....	2
88		1	....	....	1	2
89		....	....	....	....	1
90		....	....	....	....	1
91-92		1	....	....	1	1
		55	37	68	160	860.5
Age d'entrée: 66-67.						
66-67		2	1	3	6	55.5
67		7	8	4	19	103
68		2	10	7	19	81.5
69		2	3	3	8	68
70		6	3	2	11	60.5
71		1	....	7	8	48.5
72		4	....	2	6	43
73		2	....	2	4	37
74		1	....	....	1	34
75		1	....	4	5	31
76		3	....	3	6	26.5
77		2	....	2	4	21
78		1	....	....	1	18
79		3	....	1	4	16.5
80		2	....	....	2	13
81		1	....	....	1	11
82		3	....	....	3	10
83		2	....	....	2	7
84		1	....	....	1	5
85		....	....	....	....	4
86		1	....	....	1	4
87		1	....	1	2	2.5
88-89		....	....	1	1	0.5
		48	25	42	115	701
Age d'entrée: 67-68.						
67-68		1	....	5	6	51
68		2	5	8	15	94.5

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation à partir de l'année jusqu'à l'année incl. excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre, 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 67-68.					
69	7	6	3	16	81.5
70	2	9	5	16	63
71	2	2	2	6	52
72	3	1	9	13	43
73	2	1	4	7	32.5
74	1	....	2	3	27
75	2	....	4	6	23
76	1	1	....	2	18.5
77	3	....	....	3	17
78	2	....	....	2	14
79	1	....	1	2	11.5
80	1	....	....	1	10
81	1	....	1	2	8.5
82	....	....	....	....	7
83	1	....	....	1	7
84	....	....	1	1	5.5
85	....	....	1	1	4.5
86	1	....	1	2	3.5

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation à partir de l'année incl. / jusqu'à l'année excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 69-70 ans.					
72	5	2	5	12	61.5
73	3	1	2	6	51.5
74	....	1	2	3	45.5
75	3	2	5	10	40.5
76	2	....	1	3	33.5
77	3	....	2	5	30
78	2	....	1	3	25.5
79	1	....	3	4	21.5
80	2	....	....	2	19
81	2	....	....	2	17
82	1	....	....	1	15
83	2	....	....	2	14
84	1	....	....	1	12
85	3	....	....	3	11
86	1	....	1	2	7.5
87	2	....	....	2	6
88	....	....	1	1	3.5
89	1	....	....	1	3
90	1	....	....	1	2
91	....	....	....	....	1
92	....	....	....	....	1
93	....	....	....	....	1
94-95	1	....	....	1	1
	43	13	33	89	613.5
Age d'entrée: 70-71 ans.					
70-71	1	....	3	4	31.5
71	3	7	5	15	56
72	....	1	3	4	45
73	4	....	1	5	42.5
74	1	1	2	4	36.5
75	1	....	2	3	33
76	2	....	1	3	30.5
77	3	....	2	5	27
78	4	....	1	5	22.5
79	1	....	1	2	17.5
80	....	1	1	2	15
81	2	....	2	4	13
82	1	....	....	1	10
83	1	....	1	2	8.5
84	1	....	....	1	7
85	....	....	....	....	6
86	....	....	....	....	6
87	....	....	1	1	5.5
88	1	....	2	3	4
89	1	....	....	1	2
90	....	....	....	....	1
91	....	....	....	....	1
92	....	....	....	....	1
93	....	....	....	....	1
94	....	....	....	....	1
95-96	1	....	....	1	1
	28	10	28	66	425

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation à partir de l'année jusqu'à l'année incl. excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 71-72 ans.					
71-72	1	....	1	2	26
72	2	6	2	10	47
73	4	2	4	10	38
74	1	1	4	6	28.5
75	....	....	1	1	24.5
76	1	1	2	4	22.5
77	3	....	....	3	20
78	1	....	1	2	16.5
79	3	....	....	3	15
80	1	....	....	1	12
81	3	....	1	4	10.5
82	2	....	1	3	6.5
83	....	....	....	....	4
84	....	....	....	....	4
85	....	....	....	....	4
86	2	....	....	2	4
87	1	....	....	1	2
88	....	....	....	....	1
89-90	1	....	....	1	1
	26	10	17	53	287
Age d'entrée: 72-73 ans.					
72-73	....	....	4	4	25.5
73	3	6	4	13	46
74	1	2	4	7	35
75	3	2	4	9	28
76	2	1	3	6	20
77	3	1	....	4	15.5
78	....	....	1	1	11.5
79	1	....	1	2	10.5
80	1	....	3	4	7.5
81	1	....	....	1	5
82	....	....	....	....	4
83	1	....	....	1	4
84	....	....	....	....	3
85	1	....	....	1	3
86	....	....	....	....	2
87	....	....	....	....	2
88	....	....	....	....	2
89	....	....	....	....	2
90	1	....	....	1	2
91	....	....	....	....	1
92	....	....	....	....	1
93-94	1	....	....	1	1
	19	12	24	55	231.5
Age d'entrée: 73-74 ans.					
73-74	....	....	....	....	21
74	3	1	4	8	39.5
75	1	2	5	8	30.5
76	4	....	3	7	24.5
77	....	....	2	2	18
78	1	....	....	1	17

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation à partir de l'année incl. / jusqu'à l'année excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 73-74 ans.					
79	4	....	1	5	15.5
80	....	....	1	1	10.5
81	1	....	1	2	9.5
82	1	....	....	1	8
83	2	....	....	2	7
84	2	....	....	2	5
85	....	....	....	....	3
86	2	....	....	2	3
87	....	....	....	....	1
88	....	....	....	....	1
89-90	1	....	....	1	1
	22	3	17	42	215
Age d'entrée: 74-75 ans.					
74-75	....	....	2	2	19.5
75	3	2	4	9	36
76	2	1	5	8	27
77	1	....	2	3	21
78	1	....	2	3	18
79	....	....	....	....	16
80	2	....	3	5	14.5
81	2	....	1	3	10.5
82	....	....	....	....	8
83	2	....	....	2	8
84	2	....	....	2	6
85	....	....	1	1	3.5
86	1	....	....	1	3
87-88	....	....	2	2	1
	16	3	22	41	192
Age d'entrée: 75-76 ans.					
75-76	1	....	2	3	15.5
76	2	....	4	6	28
77	3	2	1	6	22.5
78	3	....	....	3	18
79	3	....	1	4	14.5
80	....	....	1	1	10.5
81	3	....	....	3	10
82	1	....	....	1	7
83	2	....	1	3	5.5
84	....	....	....	....	3
85	1	....	....	1	3
86	....	....	....	....	2
87	....	....	....	....	2
88	....	....	....	....	2
89	1	....	....	1	2
90-91	1	....	....	1	1
	21	2	10	33	146.5
Age d'entrée: 76-77 ans.					
76-77	....	....	....	....	9
77	2	1	1	4	17
78	....	1	1	2	13

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation à partir de l'année incl.	jusqu'à l'année excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
			Age d'entrée: 76-77 ans.			
79		3	....	....	3	12
80		....	1	1	2	8
81		1	....	....	1	7
82		1	....	1	2	5.5
83		1	....	....	1	4
84		....	....	....	....	3
85		....	....	....	....	3
86		1	....	....	1	3
87		1	....	....	1	2
88		....	....	....	....	1
89-90		1	....	....	1	1
		11	3	4	18	88.5
			Age d'entrée: 77-78 ans.			
77-78		1	....	....	1	10
78		1	2	3	6	16.5
79		3	....	1	4	12.5
80		3	....	....	3	9
81		1	....	....	1	6
82		....	....	....	....	5
83		....	....	....	....	5
84		2	....	....	2	5
85		1	....	....	1	3
86		....	....	....	....	2
87		....	....	....	....	2
88		....	....	....	....	2
89		....	....	....	....	2
90		....	....	....	....	2
91		1	....	....	1	2
92		....	....	....	....	1
93		....	....	....	....	1
94		....	....	....	....	1
95		....	....	....	....	1
96		....	....	....	....	1
97-98		1	....	....	1	1
		14	2	4	20	90
			Age d'entrée: 78-79 ans.			
78-79		1	....	....	1	6.5
79		....	....	1	1	11.5
80		2	....	....	2	11
81		1	....	2	3	8
82		....	....	1	1	5.5
83		1	....	....	1	5
84		1	....	....	1	4
85		1	....	....	1	3
86		....	....	....	....	2
87		....	....	....	....	2
88		....	....	1	1	1.5
89		....	....	....	....	1
90		....	....	....	....	1
91-92		1	....	....	1	1
		8	....	5	13	63

TABLE I.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation à partir de l'année jusqu'à l'année incl. excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
Age d'entrée: 79-80 ans.					
79-80	1	....	1	2	3
80	1	....	....	1	5
81	....	....	....	....	4
82	....	....	....	....	4
83	....	....	....	....	4
84	1	....	1	2	3.5
85	....	....	....	....	2
86	1	....	....	1	2
87	....	....	....	....	1
88	....	....	....	....	1
89	....	....	....	....	1
90	....	....	....	....	1
91	....	....	....	....	1
92	....	....	....	....	1
93-94	1	....	....	1	1
	5	....	2	7	34.5
Age d'entrée: 80-81 ans.					
80-81	2	....	....	2	5.5
81	....	....	1	1	8.5
82	2	....	1	3	7.5
83	1	....	....	1	5
84	1	....	....	1	4
85	1	....	....	1	3
86	....	....	....	....	2
87	1	....	....	1	2
88	....	....	....	....	1
89	....	....	....	....	1
90	....	....	....	....	1
91-92	....	....	1	1	0.5
	8	....	3	11	41
Age d'entrée: 81-82 ans.					
81-82	....	....	....	....	0.5
82	....	....	....	....	1
83-84	....	1	....	1	0.5
	....	1	....	1	2
Age d'entrée: 82-83 ans.					
82-83	....	....	....	....	2.5
83	1	1	1	3	4
84	1	....	....	1	2
85-86	1	....	....	1	1
	3	1	1	5	9.5
Age d'entrée: 83-84 ans.					
83-84	....	....	1	1	2
84	....	....	....	....	4
85	1	....	....	1	4
86	....	....	....	....	3

TABLE I.—*Concluded.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Chiffres d'observation concernant les femmes.

1 Age d'observation à partir de l'année incl.	jusqu'à l'année excl.	2 Nombre des décès	3 Nombre des sorties	4 Nombre des assurés le 31 décbre. 1899	5 Somme des colonnes 2, 3 et 4	6 Nombre de têtes exposées au risque
			Age d'entrée: 83-84 ans.			
87		1	....	....	1	3
88		1	....	....	1	2
89		....	....	....	....	1
90		....	....	....	....	1
91		....	....	....	....	1
92		....	....	....	....	1
93		....	....	....	....	1
94-95		1	....	....	1	1
		4	....	1	5	24
			Age d'entrée: 84-85 ans.			
84-85		....	....	....	....	2
85		1	....	....	1	4
86		....	....	1	1	2.5
87		....	....	....	....	2
88		....	....	....	....	2
89		....	....	....	....	2
90		....	....	....	....	2
91		....	....	....	....	2
92		....	....	....	....	2
93		....	....	....	....	2
94		1	....	....	1	2
95		....	....	....	....	1
96		....	....	....	....	1
97-98		1	....	....	1	1
		3	....	1	4	27.5
			Age d'entrée: 86-87 ans.			
86-87		....	....	....	....	0.5
87-88		....	....	1	1	0.5
		....	....	1	1	1
			Age d'entrée: 89-90 ans.			
89-90		....	....	....	....	0.5
90-91		1	....	....	1	1
		1	....	....	1	1.5

TABLE II.

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Sommes des chiffres d'observation concernant les hommes.

Age d'entrée	Nombre des décès	Nombre des sorties	Nombre des assurés le 31 décb. 1899	Somme des colonnes 2, 3 et 4	Nombre de têtes exposées au risque
0	7	3	32	42	1023.5
1	1	1	6	8	148.5
2	....	....	10	10	219
	8	4	48	60	1391
3	....	....	7	7	96
4	....	2	....	2	23
5	....	1	1	2	6
6	2	....	....	2	26
7	1	2	....	3	20.5
	3	5	8	16	171.5
8	....	1	3	4	47
9	....	3	6	9	107
10	....	2	....	2	24
11	2	....	5	7	79
12	1	3	1	5	35.5
	3	9	15	27	292.5
13	....	1	3	4	51
14	1	....	4	5	66.5
15	1	1	1	3	35.5
16	1	1	2	4	80.5
17	1	1	1	3	51.5
	4	4	11	19	285.0
18	1	12	3	16	66.5
19	5	18	15	38	493.5
20	6	37	32	75	836
21	3	34	30	67	729.5
22	5	20	16	41	506.5
	20	121	96	237	2632
23	2	13	13	28	399
24	3	13	9	25	246.5
25	3	11	7	21	221.5
26	2	5	10	17	246
27	2	9	9	20	200
	12	51	48	111	1313
28	....	10	7	17	111
29	3	6	6	15	226.5
30	....	3	9	12	158
31	1	13	7	21	180.5
32	2	5	5	12	153
	6	37	34	77	829
33	3	4	6	13	182.5
34	6	4	5	15	206
35	2	8	11	21	259
36	3	4	10	17	148.5
37	6	6	6	18	192
	20	26	38	84	988

TABLE II.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899—Sommes des chiffres d'observation concernant les hommes.

Age d'entrée	Nombre des décès	Nombre des sorties	Nombre des assurés le 31 décb. 1899	Somme des colonnes 2, 3 et 4	Nombre de têtes exposées au risque
38	1	7	9	17	134.5
39	4	5	17	26	272
40	5	11	15	31	324.5
41	1	3	9	13	93.5
42	1	8	16	25	227.5
	12	34	66	112	1052
43	5	5	12	22	229.5
44	4	3	8	15	167
45	7	6	13	26	256.5
46	5	8	9	22	225.5
47	3	10	12	25	264.5
	24	32	54	110	1143
48	4	10	11	25	171
49	8	8	16	32	285
50	12	11	17	40	286
51	7	9	12	28	219.5
52	8	10	12	30	260
	39	48	68	155	1221.5
53	11	7	18	36	226.5
54	9	11	17	37	241.5
55	13	14	19	46	316.5
56	19	12	18	49	305.5
57	16	16	23	55	320
	68	60	95	223	1410
58	17	12	17	46	296.5
59	23	25	20	68	405.5
60	27	22	27	76	420.5
61	19	22	16	57	304.5
62	19	26	25	70	320.5
	105	107	105	317	1747.5
63	34	21	14	69	423
64	29	22	18	69	438.5
65	19	23	26	68	366.5
66	23	15	13	51	271.5
67	19	13	9	41	212.5
	124	94	80	298	1712
68	16	11	16	43	203
69	16	7	15	38	168
70	19	5	11	35	183.5
71	12	7	9	28	154
72	16	8	7	31	155
	79	38	58	175	863.5
73	15	4	12	31	117.5
74	11	5	7	23	103.5
75	14	2	9	25	110
76	4	....	4	8	26
77	2	1	....	3	20
	46	12	32	90	377

TABLE II.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Sommes des chiffres d'observation concernant les hommes.

Age d'entrée	Nombre des décès	Nombre des sorties	Nombre des assurés le 31 décb. 1899	Somme des colonnes 2, 3 et 4	Nombre de têtes exposées au risque
78.....	5	2	2	9	25.5
79.....	5	2	1	8	41.5
80.....	3	1	2	6	30.5
81.....	1	....	....	1	2.5
82.....	1	1	....	2	5.5
	15	6	5	26	105.5
83.....	....	....	....	....	....
84.....	1	....	....	1	0.5
85.....	1	....	....	1	4.5
86.....	2	....	....	2	11
87.....	....	....	....	....	....
	4	....	....	4	16
Somme.....	592	688	861	2141	17,550

TABLE II.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Sommes des chiffres d'observation concernant les femmes.

Age d'entrée	Nombre des décès	Nombre des sorties	Nombre des assurés le 31 décb. 1899	Somme des colonnes 2, 3 et 4	Nombre de têtes exposées au risque
0	11	11	45	67	1302.5
1	....	3	7	10	175
2	....	1	6	7	110
	11	15	58	84	1587.5
3	1	....	7	8	87.5
4	1	....	4	5	131.5
5	1	2	8	11	147.5
6	....	2	3	5	42
7	....	1	4	5	78
	3	5	26	34	486.5
8	1	2	5	8	134.5
9	....	1	3	4	52
10	1	....	4	5	114.5
11	....	3	3	6	75
12	....	2	5	7	89
	2	8	20	30	465
13	....	1	1	2	4
14	....	1	1	2	23
15	....	1	3	4	78
16	....	....	5	5	102
17	2	2	6	10	86
	2	5	16	23	293
18	....	5	8	13	193
19	....	6	9	15	219
20	....	3	7	10	143
21	2	12	11	25	276
22	4	2	8	14	189
	6	28	43	77	1020
23	2	4	4	10	149
24	2	2	11	15	198
25	2	9	6	17	158
26	....	4	9	13	141
27	2	4	19	25	467
	8	23	49	80	1113
28	....	5	7	12	164
29	....	6	7	13	134
30	2	6	14	22	266
31	3	5	17	25	255.5
32	3	3	14	20	213.5
	8	25	59	92	1033
33	6	8	12	26	404
34	3	3	16	22	185.5
35	3	5	15	23	305.5
36	4	6	21	31	466
37	5	7	23	35	470.5
	21	29	87	137	1831.5

TABLE II.—*Continued.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Sommes des chiffres d'observation concernant les femmes.

Age d'entrée	Nombre des décès	Nombre des sorties	Nombre des assurés le 31 décb. 1899	Somme des colonnes 2, 3 et 4	Nombre de têtes exposées au risque
38	5	9	20	34	354.5
39	6	11	24	41	567
40	5	10	37	52	477.5
41	9	13	24	46	380.5
42	4	9	28	41	332
	29	52	133	214	2111.5
43	12	11	20	43	474
44	12	21	42	75	656
45	16	25	39	80	747
46	11	18	43	72	722.5
47	10	18	41	69	677
	61	93	185	339	3276.5
48	12	25	41	78	750
49	18	26	57	101	974
50	38	46	76	160	1305
51	28	36	47	111	897
52	21	33	65	119	779.5
	117	166	286	569	4705.5
53	21	50	49	120	782.5
54	24	33	71	128	842
55	32	35	86	153	1092
56	40	41	60	141	1163
57	25	50	93	168	1005.5
	142	209	359	710	4885
58	25	44	70	139	806.5
59	47	41	78	166	1075.5
60	65	53	102	220	1547.5
61	63	43	76	182	1079.5
62	64	44	82	190	1241
	264	225	408	897	5750
63	63	38	81	182	1181.5
64	47	31	68	146	1000.5
65	55	37	68	160	860.5
66	48	25	42	115	701
67	34	25	48	107	581
	247	156	307	710	4324.5
68	45	16	34	95	542.5
69	43	13	33	89	613.5
70	28	10	28	66	425
71	26	10	17	53	287
72	19	12	24	55	231.5
	161	61	136	358	2099.5
73	22	3	17	42	215
74	16	3	22	41	192
75	21	2	10	33	146.5
76	11	3	4	18	88.5
77	14	2	4	20	90
	84	13	57	154	732

TABLE II.—*Concluded.*

La mortalité des rentiers suisses depuis 1858 jusqu'à 1899.—Sommes des chiffres d'observation concernant les femmes.

Age d'entrée	Nombre des décès	Nombre des sorties	Nombre des assurés le 31 déc. 1899	Somme des colonnes 2, 3 et 4	Nombre de têtes exposées au risque
78	8	....	5	13	63
79	5	....	2	7	34.5
80	8	....	3	11	41
81	....	1	....	1	2
82	3	1	1	5	9.5
	24	2	11	37	150
83	4	....	1	5	24
84	3	....	1	4	27.5
85	....	....	....	....	....
86	....	....	1	1	1
87	....	....	....	....	....
	7	....	3	10	52.5
88	....	....	....	....	....
89	1	....	....	1	1.5
	1	....	....	1	1.5
Somme	1198	1115	2243	4556	35,918.0

TABLE III.

Rentiers suisses, 1858–1899.—Tables de sélection.

Taux de mortalité pendant les 10 premières années d'observation.

Age d'entrée	Nombre des années d'observation									
	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.
					Hommes.					
20-24	0,000.00	0,000.00	0,000.00	0,015.38	0,005.48	0,005.88	0,019.42	0,014.39	0,000.00	0,000.00
25-29	0,000.00	0,000.00	0,000.00	0,000.00	0,017.39	0,000.00	0,000.00	0,021.28	0,022.73	0,000.00
30-34	0,000.00	0,000.00	0,000.00	0,016.39	0,018.52	0,000.00	0,000.00	0,000.00	0,025.64	0,000.00
35-39	0,021.51	0,000.00	0,014.08	0,031.25	0,000.00	0,018.52	0,019.42	0,000.00	0,000.00	0,023.53
40-44	0,000.00	0,010.70	0,012.74	0,000.00	0.000.00	0,017.24	0,018.52	0,019.80	0,021.28	0,000.00
45-49	0,000.00	0,018.02	0,021.39	0,000.00	0,013.16	0,000.00	0,014.93	0,016.00	0,000.00	0,036.36
50-54	0,024.24	0,013.38	0,015.81	0,017.86	0,059.70	0,046.51	0,065.79	0,000.00	0,000.00	0,054.55
55-59	0,031.25	0,039.22	0,016.26	0,044.16	0,037.04	0,026.20	0,010.05	0,074.47	0,097.56	0,059.26
60-64	0,024.10	0,047.22	0,043.10	0,030.61	0,053.41	0,086.64	0,086.96	0,053.19	0,123.46	0,102.94
65-69	0,043.29	0,044.12	0,037.15	0,102.94	0,036.87	0,103.63	0,075.00	0,073.53	0,118.64	0,129.03
70-74	0,027.97	0,022.90	0,091.32	0,070.59	0,156.03	0,169.81	0,075.95	0,171.43	0,111.11	0,266.67
75-79	0,156.86	0,141.18	0,065.57	0,115.38	0,195.12	0,066.67	0,076.92	0,181.82	0,222.22	0,142.86
80-84	0,200.00	0,111.11	0,250.00	0,000.00	0,200.00	0,000.00	0,000.00	0,000.00	1,000.00	.....
85-89	0,000.00	0,000.00	0,000.00	0,000.00	0,666.67	0,000.00	1,000.00	.....	.....	.....
					Femmes.					
20-24	0,000.00	0,014.81	0,000.00	0,000.00	0,021.05	0,000.00	0,000.00	0,000.00	0,027.03	0,057.14
25-29	0,000.00	0,000.00	0,014.49	0,000.00	0,018.18	0,000.00	0,000.00	0,000.00	0,000.00	0,000.00
30-34	0,018.52	0,009.85	0,010.93	0,000.00	0,025.81	0,000.00	0,015.63	0,000.00	0,018.02	0,000.00
35-39	0,000.00	0,006.69	0,000.00	0,007.78	0,008.40	0,009.01	0,000.00	0,010.20	0,000.00	0,000.00
40-44	0,000.00	0,008.66	0,015.11	0,005.83	0,006.58	0,000.00	0,000.00	0,017.32	0,019.05	0,021.16
45-49	0,000.00	0,008.03	0,006.03	0,000.00	0,011.07	0,008.16	0,004.38	0,004.73	0,020.67	0,022.79
50-54	0,003.23	0,008.90	0,010.58	0,019.37	0,022.44	0,026.10	0,011.21	0,020.75	0,014.08	0,031.01
55-59	0,010.74	0,011.79	0,008.78	0,028.28	0,021.51	0,019.55	0,028.71	0,054.05	0,036.89	0,018.52
60-64	0,017.94	0,020.88	0,033.45	0,040.51	0,048.88	0,027.18	0,017.95	0,045.45	0,077.05	0,049.81
65-69	0,033.33	0,042.51	0,046.34	0,049.49	0,072.54	0,041.75	0,072.64	0,062.86	0,091.80	0,076.92
70-74	0,016.19	0,062.36	0,045.58	0,089.97	0,034.19	0,057.69	0,119.57	0,093.33	0,144.00	0,118.81
75-79	0,090.91	0,076.92	0,126.98	0,196.08	0,105.26	0,096.77	0,188.68	0,285.71	0,206.90	0,000.00
80-84	0,160.00	0,093.02	0,242.42	0,181.82	0,222.22	0,285.71	0,000.00	0,200.00	0,000.00	0,000.00
85-89	0,000.00	0,666.67	.....	.....	.....	.....	.....	.....	.....	.....

TABLE III.—*Concluded.*

British Offices. Annuity experience, 1863–1893.—Tables de sélection.

Age d'entrée	Taux de mortalité pendant les 10 premières années d'observation. Nombre des années d'observation									
	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.
					Hommes.					
20-24.....	0,000.00	0,000.00	0,111.11	0,000.00	0,000.00	0,000.00	0,000.00	0,000.00	0,000.00	0,000.00
25-29.....	0,000.00	0,028.57	0,030.30	0,066.67	0,000.00	0,000.00	0,086.96	0,052.63	0,000.00	0,000.00
30-34.....	0,000.00	0,022.22	0,023.26	0,000.00	0,000.00	0,000.00	0,035.71	0,000.00	0,000.00	0,000.00
35-39.....	0,010.64	0,023.53	0,013.33	0,000.00	0,000.00	0,016.67	0,000.00	0,019.61	0,021.74	0,024.39
40-44.....	0,005.99	0,000.00	0,014.18	0,007.94	0,008.40	0,000.00	0,009.62	0,020.62	0,000.00	0,039.47
45-49.....	0,006.17	0,013.47	0,017.86	0,023.90	0,021.46	0,009.80	0,016.39	0,043.21	0,045.45	0,013.99
50-54.....	0,009.43	0,027.54	0,024.76	0,016.46	0,024.34	0,033.25	0,026.60	0,039.55	0,030.40	0,036.79
55-59.....	0,014.69	0,014.74	0,017.26	0,028.86	0,031.80	0,027.78	0,015.18	0,032.72	0,042.70	0,038.65
60-64.....	0,024.06	0,027.90	0,036.10	0,039.46	0,034.93	0,059.47	0,044.06	0,061.42	0,051.52	0,063.55
65-69.....	0,032.09	0,045.87	0,045.81	0,041.53	0,063.37	0,059.25	0,081.80	0,069.28	0,096.30	0,076.79
70-74.....	0,045.03	0,065.32	0,061.25	0,072.77	0,091.16	0,088.00	0,105.75	0,119.31	0,141.71	0,150.33
75-79.....	0,074.72	0,085.77	0,095.14	0,105.01	0,152.11	0,134.06	0,122.27	0,128.87	0,154.32	0,157.48
80-84.....	0,106.38	0,112.24	0,168.75	0,131.78	0,155.96	0,258.43	0,171.88	0,224.49	0,428.57	0,368.42
85-89.....	0,089.29	0,244.90	0,205.88	0,222.22	0,250.00	0,307.69	0,375.00	0,600.00	0,500.00	1,000.00
90-94.....	0,200.00	0,250.00	0,000.00	0,000.00	0,500.00	1,000.00	.....	.....	.....	.....
					Femmes.					
20-24.....	0,000.00	0,000.00	0,021.28	0,000.00	0,025.00	0,029.41	0,000.00	0,000.00	0,000.00	0,000.00
25-29.....	0,000.00	0,000.00	0,000.00	0,000.00	0,015.38	0,017.24	0,000.00	0,000.00	0,000.00	0,000.00
30-34.....	0,007.41	0,008.20	0,000.00	0,019.23	0,020.00	0,010.87	0,000.00	0,012.50	0,025.00	0,000.00
35-39.....	0,007.78	0,012.66	0,022.83	0,000.00	0,010.47	0,005.62	0,006.21	0,006.21	0,012.99	0,041.67
40-44.....	0,009.92	0,006.59	0,002.38	0,004.99	0,000.00	0,008.90	0,022.51	0,027.12	0,021.58	0,023.26
45-49.....	0,007.52	0,010.49	0,010.13	0,017.86	0,010.72	0,013.63	0,011.17	0,007.91	0,030.86	0,017.74
50-54.....	0,010.74	0,015.45	0,009.82	0,012.61	0,014.26	0,014.90	0,011.71	0,016.13	0,020.30	0,020.72
55-59.....	0,007.92	0,008.42	0,017.51	0,019.44	0,023.29	0,017.91	0,029.10	0,026.66	0,029.17	0,031.80
60-64.....	0,014.24	0,020.30	0,017.15	0,028.23	0,030.69	0,032.50	0,036.21	0,043.75	0,043.29	0,043.78
65-69.....	0,021.26	0,028.60	0,031.48	0,039.18	0,039.49	0,046.39	0,050.22	0,060.67	0,069.71	0,073.81
70-74.....	0,030.93	0,045.92	0,044.10	0,052.68	0,067.22	0,085.64	0,073.08	0,107.29	0,100.38	0,106.67
75-79.....	0,056.35	0,066.54	0,090.22	0,106.88	0,120.34	0,098.62	0,134.00	0,173.40	0,169.10	0,169.12
80-84.....	0,073.24	0,179.25	0,119.05	0,150.49	0,179.64	0,119.05	0,175.93	0,164.71	0,212.12	0,153.85
85-89.....	0,144.23	0,154.76	0,191.18	0,211.54	0,243.90	0,384.62	0,333.33	0,500.00	0,400.00	0,500.00
90-94.....	0,133.33	0,285.71	0,400.00	0,200.00	0,333.33	0,000.00	0,000.00	.....	.....	.....
95-98.....	1,000.00	.....	.....	.....	.....	.....	.....	.....	.....	.....

TABLE IV.

Rentiers suisses 1858–1899.—Tables de mortalité non ajustées.

Ages	En tenant compte de toutes les observations			En négligeant les observations des premières 5 années			En négligeant les observations des premières 10 années		
	Nombre de têtes exposées au risque	Nombre de décès	Taux de mortalité	Nombre de têtes exposées au risque	Nombre de décès	Taux de mortalité	Nombre de têtes exposées au risque	Nombre de décès	Taux de mortalité
				Hommes.					
0- 4	222.0	4	0,018.02	.....	...	.....	.....	...	.....
5- 9	308.5	2	0,006.48	228.5	1	0,004.38	.....	...	.....
10-14	379.5	1	0,002.64	280.5	1	0,003.57	210.5	1	0,004.75
15-19	410.5	3	0,007.31	301.0	2	0,006.64	231.5	1	0,004.32
20-24	1,168.0	2	0,001.71	339.0	1	0,002.95	244.5	1	0,004.09
25-29	1,379.5	14	0,010.15	910.0	11	0,012.09	266.5	4	0,015.01
30-34	1,210.5	7	0,005.78	937.5	6	0,006.40	612.0	3	0,004.90
35-39	1,087.0	11	0,010.12	785.5	7	0,008.91	586.0	6	0,010.24
40-44	1,087.0	10	0,009.20	722.5	7	0,009.69	499.0	5	0,010.02
45-49	1,113.0	15	0,013.48	737.0	12	0,016.28	476.0	8	0,016.81
50-54	1,269.0	22	0,017.34	743.5	11	0,014.79	453.0	8	0,017.66
55-59	1,512.5	42	0,027.77	789.0	22	0,027.88	456.5	11	0,024.10
60-64	1,858.0	69	0,037.14	880.0	29	0,032.95	469.0	13	0,027.72
65-69	1,855.5	98	0,052.82	950.0	60	0,063.16	466.5	22	0,047.16
70-74	1,421.0	106	0,074.60	872.0	75	0,086.01	427.5	40	0,093.57
75-79	836.5	112	0,133.89	571.5	80	0,139.98	348.0	42	0,120.69
80-84	318.5	46	0,144.43	252.5	36	0,142.57	168.5	26	0,154.30
85-89	90.5	23	0,254.14	78.5	22	0,280.25	61.0	20	0.327.87
90-95	23.0	5	0,217.39	21.0	4	0,190.48	19.0	3	0,157.89
Total	17,550.0	592	.....	10,399.5	387	.....	5,995.0	214	.....

TABLE IV.—*Continued.*

Rentiers suisses 1858–1899.—Tables de mortalité non ajustées.

Ages	En tenant compte de toutes les observations			En négligeant les observations des premières 5 années			En négligeant les observations des premières 10 années		
	Nombre de têtes exposées au risque	Nombre de décès	Taux de mortalité	Nombre de têtes exposées au risque	Nombre de décès	Taux de mortalité	Nombre de têtes exposées au risque	Nombre de décès	Taux de mortalité
				Femmes.					
0- 4	330.5	6	0,018.15	.....	...	.....	.....	...	.....
5- 9	459.5	3	0,006.53	328.0	2	0,006.10	.....	...	.....
10-14	481.5	2	0,004.15	382.0	2	0,005.24	268.5	2	0,007.45
15-19	472.5	...	.....	364.5	...	.....	275.0	...	.....
20-24	660.0	3	0,004.55	381.5	1	0,002.62	287.5	1	0,003.48
25-29	786.5	6	0,007.63	500.5	3	0,005.99	298.5	2	0,006.70
30-34	954.5	5	0,005.24	608.5	2	0,003.29	387.0	...	.....
35-39	1,203.5	6	0,004.99	700.0	3	0,004.29	430.0	3	0,006.98
40-44	1,627.5	14	0,008.60	867.0	8	0,009.23	459.5	4	0,008.71
45-49	2,375.0	17	0,007.16	1,150.0	8	0,006.96	605.5	5	0,008.26
50-54	3,620.0	29	0,008.01	1,661.5	17	0,010.23	794.5	10	0,012.59
55-59	4,738.5	81	0,017.09	2,374.0	43	0,018.11	1,103.0	20	0,018.13
60-64	5,610.5	143	0,025.49	2,672.0	74	0,027.69	1,366.0	41	0,030.01
65-69	5,366.5	232	0,043.23	3,093.0	133	0,043.00	1,418.0	72	0,050.78
70-74	3,788.5	211	0,055.69	2,632.0	152	0,057.75	1,454.0	86	0,059.15
75-79	2,202.0	224	0,101.73	1,745.0	183	0,104.87	1,171.0	129	0,110.16
80-84	897.0	146	0,162.76	783.5	130	0,165.92	607.0	105	0,172.98
85-89	275.0	50	0,181.82	252.0	46	0,182.54	217.0	40	0,184.33
90-97	69.0	20	0,289.86	68.0	19	0,279.41	57.0	19	0,333.33
Total	35,918.0	1,198	.....	20,563.0	826	.....	11,199.0	539	.....

TABLE IV.—*Continued.*

British Offices. Annuity Experience, 1863-1893.—Tables de mortalité non ajustées.

Ages.	En tenant compte de toutes les observations			En négligeant les observations des premières 5 années			En négligeant les observations des premières 10 années		
	Nombre de têtes exposées au risque	Nombre de décès	Taux de mortalité	Nombre de têtes exposées au risque	Nombre de décès	Taux de mortalité	Nombre de têtes exposées au risque	Nombre de décès	Taux de mortalité
				Hommes.					
15-19	24	....	.....	13	....	.....	10	....	.....
20-24	57	....	.....	27	....	.....	18	....	.....
25-29	152	3	0,019.74	52	....	.....	31	....	.....
30-34	267	5	0,018.73	103	3	0,029.13	40	....	.....
35-39	506	7	0,013.83	196	2	0,010.20	76	1	0,013.16
40-44	867	4	0,004.61	341	3	0,008.80	143	....	.....
45-49	1,547	25	0,016.16	617	7	0,011.35	243	6	0,024.69
50-54	2,893	58	0,020.05	1,058	26	0,024.57	458	8	0,017.47
55-59	4,777	116	0,024.28	2,115	67	0,031.68	902	31	0,034.37
60-64	7,525	241	0,032.03	3,356	118	0,035.16	1,517	73	0,048.12
65-69	9,946	425	0,042.73	5,005	235	0,046.95	2,354	103	0,043.76
70-74	10,375	684	0,065.93	6,271	449	0,071.60	3,284	247	0,075.21
75-79	8,147	812	0,099.67	5,606	603	0,107.56	3,445	384	0,111.47
80-84	4,394	645	0,146.79	3,448	527	0,152.84	2,322	382	0,164.51
85-89	1,684	357	0,212.00	1,454	317	0,218.02	1,123	252	0,224.40
90-94	353	104	0,294.62	311	94	0,302.25	265	77	0,290.57
95-99	54	15	0,277.78	49	14	0,285.71	46	12	0,260.87
100-104	4	2	0,500.00	4	2	0,500.00	4	2	0,500.00
Total	53,572	3,503	.....	30,026	2,467	.....	16,281	1,578	.....

TABLE IV.—*Continued.*

British Offices. Annuity Experience, 1863-1893.—Tables de mortalité non ajustées.

Ages	En tenant compte de toutes les observations			En négligeant les observations des premières 5 années			En négligeant les observations des premières 10 années		
	Nombre de têtes exposées au risque	Nombre de décès	Taux de mortalité	Nombre de têtes exposées au risque	Nombre de décès	Taux de mortalité	Nombre de têtes exposées au risque	Nombre de décès	Taux de mortalité
				Femmes.					
15-19	50	....	.....	11	....	.....	6	....	.....
20-24	215	1	0,004.65	55	1	0,018.18	17	1	0,058.82
25-29	440	4	0,009.09	171	1	0,005.85	52	....	.....
30-34	792	6	0,007.58	312	3	0,009.62	115	2	0,017.39
35-39	1,438	17	0,011.82	577	7	0,012.13	222	5	0,022.52
40-44	2,578	27	0,010.47	1,086	14	0,012.89	466	8	0,017.17
45-49	4,903	51	0,010.40	1,955	30	0,015.35	858	12	0,013.99
50-54	9,216	114	0,012.37	3,536	51	0,014.42	1,558	22	0,014.12
55-59	15,896	224	0,014.09	6,636	112	0,016.88	2,811	51	0,018.14
60-64	25,540	521	0,020.40	11,645	266	0,022.84	5,251	133	0,025.33
65-69	32,988	1,089	0,033.01	18,447	678	0,036.75	8,719	328	0,037.62
70-74	32,922	1,623	0,049.30	22,806	1,217	0,053.36	12,892	719	0,055.77
75-79	25,145	2,039	0,081.09	20,172	1,711	0,084.82	14,010	1,217	0,086.87
80-84	14,270	1,888	0,132.31	12,568	1,677	0,133.43	10,076	1,359	0,134.87
85-89	5,502	1,063	0,193.20	5,092	998	0,195.99	4,496	885	0,196.84
90-94	1,377	380	0,275.96	1,306	361	0,276.42	1,213	338	0,278.65
95-99	169	54	0,319.53	166	52	0,313.25	157	50	0,318.47
100-104	15	6	0,400.00	15	6	0,400.00	15	6	0,400.00
Total	173,456	9,107	.....	106,556	7,185	.....	62,934	5,136	.....

TABLE IV.—*Continued.*

British Offices. Annuity Experience, 1863-1893.—Tables de mortalité non ajustées.

Ages	En tenant compte de toutes les observations			En négligeant les observations des premières 5 années			En négligeant les observations des premières 10 années		
	Nombre de têtes exposées au risque	Nombre de décès	Taux de mortalité	Nombre de têtes exposées au risque	Nombre de décès	Taux de mortalité	Nombre de têtes exposées au risque	Nombre de décès	Taux de mortalité
				Hommes.					
0- 4	4,612.5	50	0,010.84	.....	....	.....	.....	....	.....
5- 9	7,327	18	0,002.46	3,071	6	0,001.95	.....	....	.....
10-14	7,988.5	15	0,001.88	5,422.5	13	0,002.40	2,501	7	0,002.80
15-19	6,927	19	0,002.74	5,537.5	14	0,002.53	4,005	7	0,001.75
20-24	3,478	16	0,004.60	2,499	10	0,004.00	1,802	4	0,002.22
25-29	3,023.5	22	0,007.28	1,128	10	0,008.87	603.5	4	0,006.63
30-34	4,710	32	0,006.79	1,654.5	12	0,007.25	619.5	6	0,009.69
35-39	6,435	54	0,008.39	2,805	22	0,007.84	1.076	13	0,012.08
40-44	9,025.5	88	0,009.75	3,833.5	44	0,011.48	1,739	22	0,012.65
45-49	13,080.5	167	0,012.77	5,443	78	0,014.33	2,370	33	0,013.92
50-54	22,828	436	0,019.10	8,004	162	0,020.24	3,347.5	56	0,016.73
55-59	38,032	927	0,024.37	13,911	367	0,026.38	4,925	132	0,026.80
60-64	59,989.5	2,030	0,033.84	23,783.5	889	0,037.38	8,583	326	0,037.98
65-69	75,441	3,575	0,047.39	37,253.5	1,951	0,052.37	14,522	756	0,052.06
70-74	71,304	5,217	0,073.17	43,428.5	3,438	0,079.16	21,311.5	1,743	0,081.79
75-79	50,099.5	5,328	0,106.35	36,131.5	4,037	0,111.73	21,869.5	2,522	0,115.32
80-84	25,018.5	3,974	0,158.84	20,564.5	3,365	0,163.63	14,613	2,443	0,167.18
85-89	8,089.5	1,844	0,227.95	7,142.5	1,652	0,231.29	5,728.5	1,343	0,234.44
90-94	1,638	459	0,280.22	1,505	431	0,286.38	1,302	371	0,284.95
95-101	217	84	0,387.10	207	81	0,391.30	186	74	0,397.85
Total	419,264.5	24,355	.....	223,325	16,582	.....	111,104	9,862	.....

TABLE IV.—*Continued.*

British Offices. Annuity Experience, 1863-1893.—Tables de mortalité non ajustées.

Ages	En tenant compte de toutes les observations			En négligeant les observations des premières 5 années			En négligeant les observations des premières 10 années		
	Nombre de têtes exposées au risque	Nombre de décès	Taux de mortalité	Nombre de têtes exposées au risque	Nombre de décès	Taux de mortalité	Nombre de têtes exposées au risque	Nombre de décès	Taux de mortalité
				Femmes.					
0- 4	5,811	61	0,010.50	.....	....	.....	.....	....	.....
5- 9	9,264.5	23	0,002.48	3,628	8	0,002.21	.....	....	.....
10-14	9,822.5	20	0,002.04	6,513	14	0,002.15	2,753	7	0,002.54
15-19	7,854	23	0,002.93	6,472.5	18	0,002.78	4,434	11	0,002.48
20-24	3,095.5	10	0,003.23	2,167.5	7	0,003.23	1,576.5	5	0,003.17
25-29	2,402.5	13	0,005.41	892	4	0,004.48	394.5	2	0,005.07
30-34	4,197.5	20	0,004.76	1,396	10	0,007.16	498.5	2	0,004.01
35-39	6,827.5	37	0,005.42	2,537	15	0,005.91	867.5	6	0,006.92
40-44	11,834	95	0,008.03	4,096	45	0,010.99	1,565	15	0,009.58
45-49	21,943.5	231	0,010.53	7,165.5	92	0,012.84	2,545	39	0,015.32
50-54	42,495.5	529	0,012.45	12,811	188	0,014.67	4,313	68	0,015.77
55-59	71,536	1,098	0,015.35	25,608.5	439	0,017.14	7,644	127	0,016.61
60-64	106,531	2,458	0,023.07	44,121	1,149	0,026.04	15,691.5	439	0,027.98
65-69	125,436.5	4,400	0,035.08	67,082	2,616	0,039.00	27,674	1,092	0,039.46
70-74	111.864	6,306	0,056.37	75,240	4,576	0,060.82	40,437	2,586	0,063.95
75-79	76,983.5	6,944	0,090.20	60,051.5	5,649	0,094.07	40,525	3,857	0,095.18
80-84	38,263	5,544	0,144.89	33,178	4,939	0,148.86	25,671	3,910	0,152.31
85-89	13,158	2,649	0,201.32	12,041	2,476	0,205.63	10,263	2,146	0,209.10
90-94	2,891	800	0,276.72	2,719	757	0,278.41	2,436	685	0,281.20
95-99	367	127	0,346.05	357	123	0,344.54	318	113	0,355.35
100-107	28	8	0,285.71	28	8	0,285.71	27	7	0,259.26
Total	672,606	31,396	.....	368,104.5	23,133	.....	189,633.5	15,117	.....

TABLE V.

Valeur de l'annuité de 1 fr., payable à la fin de l'année au taux d'intérêt de 3½%.
Tables non ajustées.

Ages	Calculées d'après des tables de mortalité: En tenant compte de toutes les observations	En négligeant les observations des premières: 5 années	10 années	Calculées d'après des tables de sélection
	Rentiers suisses, 1858-1899.			
	Hommes.			
40	16,083	15,928	16,033	17,827
45	14,535	14,386	14,528	15,680
50	12,941	12,957	13,213	12,806
55	11,208	11,095	11,654	9,897
60	9,596	9,415	9,949	9,167
65	7,908	7,376	7,883	7,970
70	6,286	5,971	5,936	6,637
75	4,684	4,620	4,868	5,134
80	3,993	3,961	3,658	4,243
	Femmes.			
40	17,579	17,340	17,094	17,241
45	16,340	16,146	15,769	15,646
50	14,618	14,370	14,003	14,170
55	12,589	12,415	12,159	12,568
60	10,739	10,584	10,214	10,270
65	8,838	8,796	8,452	9,224
70	7,179	7,079	6,968	7,731
75	5,292	5,223	5,062	5,721
80	3,918	3,889	3,741	4,047
	British Offices. Annuity Experience, 1863-1893.			
	Hommes.			
40	16,749	16,246	16,192	15,449
45	14,886	14,603	13,869	13,815
50	13,467	12,773	12,856	13,138
55	12,039	11,475	11,081	12,084
60	10,425	10,032	9,547	10,420
65	8,733	8,424	8,455	8,716
70	6,977	6,704	6,555	7,100
75	5,412	5,210	5,076	5,939
80	4,051	3,937	3,755	4,439
	Femmes.			
40	17,412	16,673	16,320	16,947
45	16,386	15,570	15,627	15,960
50	14,993	14,432	14,372	14,725
55	13,472	13,038	12,870	13,275
60	11,652	11,321	11,187	11,627
65	9,711	9,447	9,372	9,891
70	7,853	7,670	7,580	8,197
75	5,998	5,897	5,852	6,468
80	4,382	4,355	4,334	4,827

TABLE V.—*Continued.*

Valeur de l'annuité de 1 fr., payable à la fin de l'année au taux d'intérêt de 3½%.
Tables non ajustées.

Ages	Calculées d'abrés des tables de mortalité			Calculées d'après des tables de sélection
	En tenant compte de toutes les observations	En négligeant les observations des premières 5 années	10 années	
	Rentiers français, 1819-1898.			
	Hommes.			
40	16,308	15,872	15,817	15,872
45	14,850	14,484	14,597	14,355
50	13,260	12,912	13,049	12,819
55	11,701	11,339	11,270	11,458
60	10,036	9,670	9,602	9,778
65	8,342	8,036	7,991	8,412
70	6,629	6,401	6,298	6,875
75	5,143	5,009	4,924	5,429
80	3,809	3,732	3,687	4,224
	Femmes.			
40	17,494	16,868	16,782	16,939
45	16,158	15,672	15,440	15,663
50	14,723	14,298	14,190	14,294
55	13,088	12,723	12,644	12,864
60	11,224	10,883	10,709	11,078
65	9,316	9,044	8,948	9,337
70	7,402	7,208	7,094	7,591
75	5,646	5,531	5,490	6,089
80	4,127	4,052	3,995	4,804

ABSTRACT.

ON THE MORTALITY AMONG THE LIFE ANNUITANTS OF SWITZERLAND.

By C. Kihm.

The five Swiss Life Societies transacting an annuity business have joined together for the purpose of obtaining the necessary statistics for the study of the mortality among their annuitants.

The experiences have been gathered by means of individual cards similar to those used for the compilation of the German table of mortality among annuitants. The actual work of compiling the tables has been done by the "Societe Suisse d'Assurances Generales sur la Vie," under the supervision of the author, and by following the same method of arrangement that was used for the making up of the mortality table for the 23 German Societies, with only this difference, that the supplementary insurances have been made the subject of new individual cards. The persons medically examined at entrance have been disregarded (survivorship annuitants). 7096 individual cards have been so compiled. The period of observation comprises the entire history of the five societies up to December 31, 1899.

With these materials, the author has constructed, for the males and females separately, ordinary mortality tables and tables by ages at entry (what he calls select tables), these last being taken by five year age groups. For comparison he has shown the latest English experience.

The results reached, notwithstanding the scantiness of the material, confirm the results set forth in the publication, "Combined Experience of Life Annuitants (1863-1893)."

The mortality among the females is notably less than among the males.

The choice of the risk made by the annuitant himself (self selection) has a very strong effect, principally during the first years; but this effect has certainly not disappeared after the first ten years.

The mortality among the Swiss annuitants is, in general, higher than among the English annuitants.

These results appear in the tables giving, for males and females separately, the mortality by five-year age groups, (*a*) without taking into account the duration of the annuity, (*b*) in excluding the 5 first years of the annuity, (*c*) in excluding the 10 first years of the annuity.

The author has also computed the value of annuities at 3½ per cent. for males and females separately, by taking, (*a*) the (non-adjusted) select tables, by ages at entry; (*b*) the (non-adjusted) mortality tables, all observations included; (*c*) the (non-adjusted) mortality tables, the first five years excluded; (*d*) the (non-adjusted) mortality tables, the first ten years excluded.

The methods followed are those indicated in the publication above mentioned ("Combined Experience, &c., 1863-93").

Verifications similar to those on mortality have been made on the annuitants existing at the end of the period.

The cost of annuity for a female is sensibly greater than for a male.

There is also an essential difference between the annuities computed from the table of ordinary mortality and the annuities computed from the tables by ages at entry. The first are higher than the second at young ages. The reverse occurs at the old ages. This is easily explained by the comparatively small number of persons uninfluenced by selection at the young ages, and, on the contrary, by the comparatively large number of persons uninfluenced by selection at the old ages.

The higher rate of mortality among the Swiss annuitants than among the English annuitants may, in part, be explained by the fact that the mortality in general is higher in Switzerland than in Great Britain; but it must also be taken into consideration that a great number among the Swiss annuitants are compulsorily enrolled, being members of certain trades or professions, and as to whom there is no question of self-selection.

RÉSUMÉ.

SUR LA MORTALITÉ DES RENTIERS SUISSES.

Par C. Kihm.

Les cinq sociétés suisses-vie qui font des assurances de rentes se sont entendues pour fournir les éléments statistiques nécessaires à l'étude de la mortalité parmi leurs rentiers.

Leurs expériences ont été réunies au moyen de cartes individuelles semblables à celles employées pour la construction de la table allemande de mortalité des rentiers. Et les travaux d'exécution des tables ont été effectués par la Société suisse d'Assurances générales sur la vie humaine, sous la direction de l'auteur, en suivant la même méthode de coordination que pour la construction des tables de mortalité des 23 sociétés allemandes, avec cette seule différence que les assurances supplémentaires, les refontes, ont fait l'objet de nouvelles cartes individuelles. Les personnes examinées médicalement à l'entrée ont été laissées de côté (assurés des rentes de survie).

Le nombre des cartes individuelles ainsi réunies est de 7,100, celui de personnes observées est de 6,700. La période d'observation embrasse tout le passé des 5 sociétés jusqu'au 31 décembre 1899.

Avec ces matériaux, l'auteur a construit, pour les deux sexes séparément, des tables de mortalité ordinaires et des tables de mortalité par âges à l'entrée (Selectionstafeln) ces dernières procédant toutefois par groupes d'âges [x] de 5 ans.

En regard, il a indiqué les dernières expériences anglaises.

Les résultats auxquels il arrive malgré l'exiguité du matériel dont il disposait, sont une confirmation de ceux consignés dans la publication "Combined Experience of Life Annuitants (1863-1893)."

La mortalité du sexe féminin est notablement plus faible que celle du sexe masculin.

La sélection de risque opérée par le rentier lui-même (autosélection) se fait sentir très fortement surtout pendant les premières années, et l'influence de cette autosélection n'a certainement pas disparu après les 10 premières années.

La mortalité des rentiers suisses est généralement plus forte que celle des rentiers anglais.

Ces résultats sont surtout visibles dans les tableaux qui donnent, pour les deux sexes séparément, la mortalité par groupes d'âges de 5 ans.

a) sans tenir compte de la durée de l'assurance.
b) en éliminant les 5 premières années de l'assurance.
c) en éliminant les 10 premières années.

L'auteur a aussi calculé la valeur des annuités à 3½% pour les deux sexes séparément, en opérant

a) sur les tables (non ajustées) de sélection (par âges à l'entrée).
b) sur les tables de mort, toutes obser. comprises.
c) sur les tables déd. faite des 5 prem. années d'ass.
d) sur les tables déd. faite des 10 prem. années d'ass.

Les méthodes suivies sont celles indiquées dans la publication déjà mentionnée (Combined Expérience, 1863-93).

Des constatations analogues à celles sur la mortalité ont été faites sur les annuités.

Le prix d'achat d'une rente de 1 est très sensiblement plus élevé pour le sexe féminin que pour l'autre.

Il y a aussi une différence essentielle entre les annuités calculées d'après la table de mortalité ordinaire et celles calculées d'après les tables par âges à l'entrée. Les premières sont plus élevées que les secondes aux jeunes âges. C'est l'inverse qui a lieu aux âges avancés. Cela s'explique facilement par le petit nombre relatif de têtes n'étant plus sous l'influence de la sélection aux jeunes âges, et, en opposition, par le grand nombre relatif de têtes n'étant plus sous l'influence de la sélection aux âges avancés.

La plus grande mortalité des rentiers suisses par rapport aux rentiers anglais peut s'expliquer en partie par le fait que la mortalité générale elle-même est un peu plus élevée en Suisse qu'en Angleterre; mais il faut aussi considérer que parmi les rentiers suisses, il se trouve des personnes assurées obligatoirement comme membres de certaines corporations ou professions, et pour lesquelles il ne peut être question d'autosélection.

DER WAHRSCHEINLICHE LAUF DES ZINSSATZES IN DER ZUKUNFT.

Von Dr. Ludwig Grossmann,

Mathematiker und Herausgeber die Fachschrift "Controle," Wien.

Unter dem Begriff des Capitals vom volkswirtschaftlichen Gesichtspunkte muss das gesammte Vermögen, soweit es bei der Production mitwirkt, verstanden werden. Dem wirtschaftenden Individuum hingegen gilt das Capital einfach als Erwerbsmittel, ob es nun wirklich Productionsmittel ist oder nicht. Die menschliche Thätigkeit ist eine capitalsbildende, indem sie einerseits den nicht productiven Consum in einen productiven verwandelt oder jenen durch diesen ersetzt und andererseits nicht blos für die Gegenwart schafft durch Anhäufung von Vorräthen, sondern auch durch Schaffung neuer Productionsmittel die Production der Zukunft steigert. Das Capital selbst ist aber vom individuell wirtschaftlichen Standpunkte blos Erwerbsmittel und erfüllt in seiner Nutzung den Zweck. — Die Nutzung des Capitals ist also wirtschaftlich gerechtfertigt und kann gegen eine vereinbarte Vergütung, welche in Form der Zinsen entrichtet wird, auf Andere übertragen werden.

Unter Zinsen versteht man daher die Vergütung für die Benützung eines sowohl stehenden als auch umlaufenden, einem Anderen zugehörigen Geldcapitales und das Verhältnis der Zinsen zur Capitalssumme, von welcher dieselben entrichtet werden, wird Zinssatz (Zinsfuss) genannt. Der Zinssatz ist daher der porportionale Ausdruck relativer Capitalsverwertung. Die Höhe des Zinssatzes ist bedingt durch das Verhältnis von Angebot und Nachfrage nach Capitalien, wobei die unterste Grenze, unter welche derselbe nicht herabgehen kann, bestimmt ist durch die Neigung derjenigen, welche, im Besitze von Capitalien sich befindend, dieselben fruchtbringend zu verwenden die Absicht und Fähigkeit haben. Die Grenze kennzeichnet auch jenes Niveau, bei welchem der Ansammlungstrieb eben verschwinden würde. Durch den Nutzen hingegen, welchen man sich aus dem geliehenen Capital überhaupt versprechen darf, ist die Grenze nach oben gezogen, obzwar in Fällen der Nothlage dieselbe weit überschritten werden kann.

Im Alterthum und Mittelalter waren die Grenzen des Zinsfusses nach obenhin ungemein willkürliche. Die einzige Form des Credites überhaupt war diejenige des Privatcredites und bei diesem wurden alle Umstände ausgenützt, um einen möglichst hohen Zinssatz zu erzielen. Es mussten deshalb immer neue und schärfere Gesetze geschaffen werden, um dem Wucher Einhalt zu thun. Erst mit der Entwicklung des Handels und eines geregelten Creditwesens konnte im öffentlichen Verkehr von einer derartigen allgemeinen gesetzlichen Beschränkung des freien Uebereinkommens in Betreff des Zinssatzes zum Theile Abstand genommen werden.

Insbesondere mit der industriellen und verkehrspolitischen Entwicklung des letzten Jahrhunderts, welche eine continuirliche Steigerung des Volksvermögens hervorbrachte, sowie mit der wirtschaftlichen Entfaltung und ökonomischen Kräftigung des Staatswesens im allgemeinen ist die relative Höhe des Zinssatzes in einem nicht unbedeutenden Masse gesunken. Durch eine rationelle Systemisirung und Sicherung der Einnahmsquellen haben nicht nur die Staatsschulden überhaupt, sondern auch die öffentlichen Privatschulden an Securität gewonnen, und indem mit der wirtschaftlichen Kräftigung auch eine gewisse staatliche Con-

trolle über die Einhaltung der rechtlichen Verträge bei Privatschulden immer mehr sich Geltung verschaffte und auf diese Art die Sicherheit des mobilen Eigenthums gehoben wurde, nahm der Zinsfuss eine desto grössere Bewegung nach abwärts, je mehr das sich stetig häufende Capital verzinsliche Anlage suchte. Die ersten Phasen dieser Erscheinung reichen in diejenige Zeit, wo die ersten bedeutenden Industrie- und Handelsgesellschaften sich zu bilden anfiengen, doch erst das letzte Jahrhundert war es, welches durch seine Erfindungen auf den verschiedensten Gebieten das Capital zwang, auf allen Linien in Action zu treten. Der Ersatz der Landstrassen durch Eisenbahnen und die Beherrschung des Meeres durch das Dampfschiff verursachte in dieser Beziehung einen nie geahnten Aufschwung. Die Welt rückte mit diesen neuen Communikationsmitteln immer näher zusammen, wodurch Handel und Verkehr in jeder Weise gehoben wurden. Das Capital als fördernder Motor derselben suchte immer mehr die industrielle Investition, wozu nicht wenig der Ausbau eines geordneten finanzwirtschaftlichen Systems und die mit demselben verbundene zielbewusste Gründung verschiedener wirtschaftlichen Zwecken dienender Bank- und Creditinstitute beitrugen. Diese übten besonders jenen Einfluss aus, welcher notwendig war, um Angebot und Nachfrage nach Capital in vollem Masse zur Geltung kommen zu lassen. Hieraus zog nun auch der Productivcredit Vorteil. Das rapide Anwachsen des mobilen Capitals und der mit demselben verbundene förmliche Wettkampf um eine geeignete sichere Kapitalsanlage musste die Prätensionen des öffentlichen Gläubigers bedeutend herabdrücken.

Dieser Wettkampf erfährt nun fortgesetzt eine weitere Verschärfung. Gegenwärtig repräsentiren die Zinsen, welche Europa allein jährlich zahlt, die Summe von mehr als 15 Milliarden Francs, wovon etwa zwei Drittel durch Staatsrenten und ein Drittel durch Actien-Gesellschaften und Privatschulden repräsentirt werden. Hievon gelangt etwa der dritte Teil wieder zur Aufzehrung, so dass die jährliche Zunahme am Gesammtcapital auf etwa zehn Milliarden geschätzt werden kann. Aus diesen Zahlen kann man entnehmen, wie viel Capital mehr jedes Jahr entsprechende Anlage sucht. Obzwar nun constatirt werden muss, dass auch die Anfrage nach Capital eine verhältnismässig grosse ist, so lässt sich doch nicht leugnen, dass dieselbe durch das Angebot bei weitem übertroffen wird. Wie wäre es denn sonst möglich, dass der Durchschnittszinsfuss im Laufe von nicht ganz 5 Decennien um fast den dritten Teil gesunken ist. Trotzdem eine bedeutende industrielle Entwicklung auf allen Gebieten eine ebenso grosse Nachfrage nach Capital verursachte. Innerhalb der gleichen Periode ist der Zinsfuss der englischen Staatsrenten von $3\frac{1}{2}$ auf $2\frac{1}{2}\%$, der Zinsfuss der französischen und belgischen Staatsrenten von $4\frac{1}{2}$ auf $3\frac{1}{4}\%$, der Zinsfuss der deutschen Staatsschuld von 5 auf $3\frac{1}{2}\%$ und der Zinsfuss der österreichischen und ungarischen Staatsschulden sogar von 8 auf 4% gesunken. Neben der steigenden Securität der Staatsschulden ist daher in erster Linie der jährliche Zuwachs des Gesammtcapitales und das aus demselben entspringende grössere Angebot die Ursache der immer sich günstiger gestaltenden Darlehensbedingungen. Dieser Umstand wäre sogar geeignet, den allgemeinen Process der Zinsfussermässigung noch mehr zu beschleunigen, wenn nicht eine von Zeit zu Zeit durch grosse, bedeutenden Capitalsaufwand involvirende Staatsactionen hervorgebrachte grössere Nachfrage nach Capital eine diesbezügliche Unterbrechung herbeiführen würde.

Im übrigen ist es ein alter Erfahrungssatz, dass durch die Wert-

zerstörung, welche Kriege hervorbringen und durch die Neuanschaffungen, die ihnen auf dem Fusse folgen, die wirtschaftliche Thätigkeit eine Anregung empfängt, die zur Erhöhung der Zinssätze drängt.

Resumirt man alle in dieser Hinsicht wirkenden Einflüsse, so gelangt man zu folgendem Schlusse: Eine der wichtigsten Ursachen des Processes der stetigen Zinsfussabnahme liegt unstreitig in dem Umstande einer im Verhältnisse zur Nachfrage allzugrossen Vermehrung des Anlage suchenden Capitals. Eine weitere nicht minder schwerwiegende Ursache ist wol in der Erscheinung einer stetig zunehmenden Securität der öffentlichen und Privatschulden zu suchen, wodurch die Risicoprämie, welcher sonst hinsichtlich der Höhe des Zinssatzes eine wichtige Rolle zugedacht ist, nahezu ausser Kraft kommt, so dass der Zinssatz eine namhafte Ermässigung erfährt. Eine dritte Ursache dieses Processes mag wol auch in der stetigen Abnahme der Kaufkraft des Geldes gelegen sein. Es ist eine bekannte Erscheinung im wirtschaftlichen Verkehre, dass der relative Wert des Geldcapitales sich in einer langsam fortschreitenden, fast stetigen Abnahme befindet, und in Folge dessen die Kaufkraft desselben sich fortwährend verringert. Die Ursachen dieses Vorganges mit Sicherheit festzustellen und diesbezüglich zu bestimmten Ergebnissen zu gelangen, ist der Wissenschaft bisher noch nicht gelungen, jedoch sind genügende Anhaltspunkte vorhanden, um die allgemeinen Grundsätze, die eine einfache Beobachtung und Erwägung nahe legt, in ihrem Wesen zu kennzeichnen.

Was den Einfluss dieser Erscheinung auf den Zinssatz betrifft, so führen die Beobachtungen zu folgender Wahrnehmung: das Capital als solches verliert soviel von seinem Kaufwerte, dass bei der Production zur Erzielung des gleichen Arbeitseffectes das mehrfache des früheren Aufwandes nötig wird; und da die Warenpreise nicht im gleichen Verhältnisse mit den Löhnen steigen, so äussert sich dies in der Abnahme jenes Anteiles, mit welchem das Capital an dem Ertrag der Production participirt. Dieser Umstand kann jedoch keinesfalls von solch bedeutender Wirkung sein, um die Zinsfussabnahme in jenem Masse zu rechtfertigen, wie sich dieselbe tatsächlich äussert. Der hauptsächlichste Beweggrund für die so rasche Abnahme des Zinssatzes in unserer Zeit liegt in der stets sicherer werdenden fix verzinslichen Anlage und dem übermässigen Andrang des Capitales zu jenen Werten, welche dieselbe repräsentiren, wie Staatsrenten, Pfandbriefe, Eisenbahnobligationen, sowie Hypothekar- und Bodencredit. Durch den Entfall der Risicoprämie reducirt sich das Zinsenäquivalent von selbst, und da man gewohnt ist, den Zinsfuss anderer Anlagen von diesem abhängig entsprechend zu calculiren, so wird auch dieser durch den Process mitgerissen.

Die Erscheinung der in unserer Zeit so intensiven Abnahme der Rentabilität scheint daher vorwiegend temporärer Natur zu sein. Im Wesen liegt dieselbe in dem facultativen Schwinden der Risicoprämie, besonders bei fix verzinslichen Anlehen von hoher Securität, dessen Wirkung sich fallweise auch auf Werte überträgt, die nur zum Teile dieser Bedingung entsprechen. Mit Rücksicht auf den Umstand nun, dass besonders die Versicherungsinstitution für ihre Capitalsanlage gerade auf solche Werte angewiesen ist, macht sich diese Erscheinung hier umso fühlbarer, als die immer grösser werdende Anhäufung von Capitalien die Nachfrage nach fix verzinslichen Anlagewerten stetig erhöht und den Zinsfuss auch der anderen Werte drückt. Wenn sich also auch nicht leugnen lässt, dass eine stetige Abnahme der Rentabilität in Folge der beiden anderen in Betracht kommenden Ursachen fortgesetzt sich vollzieht, so muss immerhin eingeräumt werden, dass dieselbe

mit Rücksicht auf die periodisch eintretenden naturgemässen Unterbrechungen in dieser Hinsicht einen relativ mässigen Fortschritt erwarten lässt und tatsächlich für die nächste Zukunft nur von geringer Bedeutung sein dürfte, sobald die Marge, welche in der Risicoprämie als Zinsenäquivalent sich äussert, in dem Masse, als sie ihre Berechtigung verloren hat, absorbirt sein wird. Darauf deutet der unausgesetzt sich steigernde Bedarf an Capitalien zu Zwecken der ökonomischen Investition und Ausgestaltung industrieller Betriebe, welche die neue Entwicklung der capitalistischen Organisation in wirtschaftlicher Hinsicht zeitigt.

Auszug (zur Uebersetzung bestimmt).

1. Begründung des ökonomischen Grundsatzes, wonach die Nutzung des Capitales wirtschaftlich gerechtfertigt ist und gegen eine vereinbarte Vergütung, welche in der Form von Zinsen entrichtet wird, auf andere übertragen werden kann.

2. Das Wesen des Zinssatzes und dessen Grenzen.

3. Ausgestaltung des Creditwesens und Steigerung der Securität öffentlicher Schulden, hauptsächlich verursacht durch ökonomische Entfaltung und Kräftigung der Staatswesen und verschärfte Controlle über die rechtliche Einhaltung der Schuldverträge. Als Folge dieses Umstandes ein Schwinden der Risicoprämie der öffentlichen Schuld und Sinken des Zinssatzes, als wichtigste Ursache der Abnahme der Capitalsrentabilität.

4. Weitere Ursachen der stetigen Abnahme des Zinssatzes, und zwar:

a) Uebermässige Ansammlung von Capitalien und in Folge dessen höhere Nachfrage nach geeigneter, besonders fix verzinslicher Anlage,

b) Stetige Abnahme der Kaufkraft des Geldes und demzufolge Abnahme jenes Anteiles, mit welchem das Kapital an dem Ertrage der Production participirt.

5. Resumé und Betrachtung über den Einfluss dieser Ursachen auf den Zinssatz und dessen wahrscheinlichen Lauf in der Zukunft mittelst folgender Reflexion: Die Erscheinung der in unserer Zeit so intensiven Abnahme der Rentabilität scheint vorwiegend temporärer Natur zu sein. Im Wesen liegt dieselbe in dem facultativen Schwinden der Risicoprämie, besonders bei fix verzinslichen Anlehen von hoher Securität, dessen Wirkung sich fallweise auch auf Werte überträgt, die nur zum Teile dieser Bedingung entsprechen. Mit Rücksicht auf den Umstand nun, dass besonders die Versicherungsinstitution für ihre Kapitalsanlage gerade auf solche Werte angewiesen ist, macht sich diese Erscheinung hier umso fühlbarer, als die immer grösser werdende Anhäufung von Capitalien die Nachfrage nach fix verzinslichen Anlagewerten stetig erhöht und den Zinsfuss auch der anderen Werte drückt. Wenn sich also auch nicht leugnen lässt, dass eine stetige Abnahme der Rentabilität in Folge der beiden anderen in Betracht kommenden Ursachen fortgesetzt sich vollzieht, so muss immerhin eingeräumt werden, dass dieselbe mit Rücksicht auf die periodisch eintretenden naturgemässen Unterbrechungen in dieser Hinsicht einen relativ mässigen Fortschritt erwarten lässt und tatsächlich für die nächste Zukunft nur von geringer Bedeutung sein dürfte, sobald die Marge, welche in der Risicoprämie als Zinsenäquivalent sich äussert, in dem Masse, als sie ihre Berechtigung verloren hat, absorbirt sein wird. Darauf deutet der unausgesetzt sich steigernde Bedarf an Capitalien zu Zwecken der ökonomischen Investition und Ausgestaltung industrieller Betriebe, welchen die neue Entwicklung der capitalistischen Organisation in wirtschaftlicher Hinsicht zeitigt.

RÉSUMÉ.

COURS PROBABLE DU TAUX DE L'INTÉRÊT DANS L'AVENIR.

Par Dr. L. Grossmann.

1. Les arguments de l'axiome économique que l'utilisation du capital est justifiée et qu'on peut la transmettre au tiers en échange pour une compensation en forme d'intérêt.

2. La nature du taux de l'intérêt et ses bornes.

3. Le développement des affaires du crédit et la crue de la sécurité des dettes publiques, causée principalement par l'évolution et la corroboration de l'économie politique et la surveillance plus rigoureuse de l'acquittement légal des obligations contractées. Voilà la conséquence de ce fait: le décroissement de la prime du risque des dettes publiques et la diminution du taux, — la cause la plus importante du décours de la rentabilité du capital.

4. Voilà d'autres causes de l'affaiblissement graduel du taux:

a. L'amas excessif des capitaux et conséquemment la meilleure demande de propre placement, surtout de taux fixe.

b. Le délabrement graduel du pouvoir d'achat de l'argent, et en conséquence le décours de la cote du capital au produit de la production.

5. Résumé et considération de l'influence de ces causes sur le taux et le probable cours du taux à l'avenir, au moyen de la réflexion suivante: Le phénomène de la diminution intense à l'heure actuelle ne paraît que d'une nature temporaire. Elle se base essentiellement sur le décroissement facultatif de la prime du risque,—surtout des emprunts de taux fixe et de grande sécurité,— L'effet de cette diminution n'étant resseuti que par les valeurs correspondant partiellement (à ces conditions). A l'égard du fait que les instituts d'assurance dépendent particulièrement de telles valeurs en plaçant leurs capitaux, ce phénomène est ressenti d'autant plus ici que l'amas des capitaux, qui grandit de jour en jour, augmente la demande de placement à taux fixe, et diminue le taux aussi des autres valeurs. Néanmois, quoiqu'il nous faille concéder que l'affaiblissement graduel de l'intérêt soit attribuable à ces causes,—il nous faut accorder que cet affaiblissement,—en égard à ses interruptions périodiques naturelles,— sont comparativement minimes et en fait de peu d'importance pour un prochain futur, et qu'il ne pourrait pas bien,—en effet,—être d'un grand poids aussitôt que la marge, représentée par la prime comme un équivalent d'intérêt, pour le risque à courir sera absorbée après avoir perdu le droit existence. C'est ce qui indiqué par la demande des capitaux pour l'emploi et pour le développement des entreprises industrielles, qui augmentant sans cesse. Laquelle demande provient du développement moderne de l'organisation du capital à un point de vue économique.

ABSTRACT.

THE PROBABLE FUTURE COURSE OF THE INTEREST RATE.

By Dr. L. Grossmann.

(1) Foundation of the economical principle, which justifies the utilization of capital and also permits of giving the use of the money to other parties upon payment of a stipulated fee, to be paid in the form of interest.

(2) The nature of the rates of interest and their limits.

(3) Development of the system of credit and the increase of the security of public debts, mainly due to the economic development and strengthening of the State body, and a stricter supervision as to the prompt settlement of debts. The consequence of this is a decrease in premium for the risk of the public debt and a lowering of the rate of interest, the main cause of the decrease in the returns from invested capital.

(4) Other causes of the steady decrease of the rate of interest, namely:

(a) Excessive accumulation of capital and consequently an increased demand for suitable investments yielding fixed returns.

(b) Steady decrease of the purchasing power of money, and consequently diminution of that portion of the capital which participates in the yield of the production.

(5) Abstract and observations on the effect of these causes upon the rate of interest and its presumable course in the future by the following reflections: The present marked decrease in the returns from investments appears to be mainly of a temporary nature. It is principally based on the optional diminution of the premium of risk, especially for investments which unite fixed returns with high security; the effect of this diminution is felt upon values which correspond only partly to these conditions. Considering now that insurance companies are especially dependent upon such values for their investments, this phenomenon is felt all the more here, the more a growing capital continually increases the demand for investments yielding fixed returns, and it reduces the rate of interest for other values also. Thus, although we cannot deny a continuous decrease in the returns from invested capital in consequence of these causes, yet we must admit that on account of the natural periodical interruptions the same will be comparatively small, and, in fact, of little importance for the near future, as soon as the margin (represented by the premium for the risk as an equivalent for the interest) will be wiped out in the same degree as its right to exist ceases. This is indicated by the steadily increasing demand for capital for economical investments and the development of industrial plants, which demand is due to the recent development of organized capital from an economical point of view.

NOTE SUR LES VARIATIONS DU TAUX DE L'INTERET EN BELGIQUE PENDANT LA PËRIODE CONTEMPORAINE.

PAR F. HANKAR.

Directeur, La Caisse Générale d'Epargne et de Retraite, Bruxelles.

Les variations de l'intensité de la mortalité ont fait l'objet de nombreux rapports et bien des aspects de cette question si importante pour les assureurs ont été examinés. Cette étude, qui présente pour l'actuaire un vif intérêt, est forcément liée à l'examen de la question du prix du loyer de l'argent puisque c'est en combinant ces deux éléments, la mortalité et l'intérêt, qu'il établit ses calculs de primes pures.

On sait que par suite de l'importance et de la longueur des engagements pris, le taux de l'intérêt exerce sur la situation des organismes d'assurances sur la vie une influence beaucoup plus considérable que lorsqu'il s'agit d'institutions financières qui d'ordinaire ne prennent que des engagements à courts termes.

Nul n'ignore que le taux du loyer de l'argent s'est abaissé d'une manière assez continue depuis le commencement du siècle et il n'est point nécessaire de faire des recherches spéciales pour constater ce fait généralement connu. Il nous a paru cependant intéressant de rechercher dans quelles limites l'intérêt a diminué dans le passé en examinant plus spécialement ce qui a trait à la Belgique pendant la dernière partie du XIX^{e} siècle.

La question de l'abaissement du taux de l'intérêt et des moyens à mettre en œuvre pour se prémunir contre cette éventualité a été examinée avec autorité par *M. Fackler;* dans son remarquable rapport au Congrès de Bruxelles il s'est attaché à déterminer l'écart qui doit exister entre le taux effectif obtenu sur l'ensemble des placements d'une compagnie d'assurances et celui qui a servi à calculer les tarifs, pour que l'avenir soit assuré. Cette étude a été faite en prenant pour base une diminution régulière du taux de l'intérêt et elle est de nature à rassurer entièrement ceux qui pourraient voir dans l'abaissement continu du taux du loyer de l'argent une cause de nature à restreindre les opérations d'assurances-vie, si pas à les rendre impossibles ou même dangereuses pour l'assureur.

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Les indications que l'on peut trouver sur le taux des prêts dans l'antiquité sont généralement assez imprécises et nous examinerons très rapidement ce qui a trait à cette époque.

En Grèce, le taux courant de l'intérêt était compris entre 10 et 16% et seules les opérations de grande sécurité étaient traitées à un taux voisin de dix pour cent.

A Rome, la moyenne des prêts dans l'antiquité était voisine de 12%.

Le taux des prêts d'argent est plus difficile encore à déterminer pendant la période qui suivit la décadence de Rome et les renseignements que l'on peut recueillir doivent être examinés avec la plus grande réserve. On peut, d'une manière générale, dire que les opérations de

prêts d'argent moyennant le paiement d'un intérêt étaient limitées et que les conditions variaient d'une localité à une autre.

Le développement considérable du commerce en Belgique vers le XIV^e^ siècle a augmenté dans des proportions inconnues jusqu'alors le mouvement d'affaire. Les villes de Bruges, de Gand et d'Anvers étaient les centres où se traitaient les grandes opérations financières. C'est à Anvers qu'Édouard IV, roi d'Angleterre, trouvait à emprunter au taux de 14% les sommes importantes dont il avait besoin. On cite d'ailleurs comme un des titres de la renommée naissante de Sir *Thomas Gresham,* qui exerçait alors à Anvers les fonctions de « Royal Agent,» d'avoir pu obtenir des réductions progressives qui ont ramené *ce taux à 10%.*

Quel était à ce moment le *taux des prêts faits au commerce?* Il est bien difficile de répondre à cette question d'une manière un peu précise, mais on peut affirmer que ce taux était très élevé. L'augmentation des moyens de communication, l'amélioration de la monnaie, l'accroissement de la sécurité générale ont eu pour conséquence de faciliter et de régulariser les opérations de prêt et de contribuer à la diminution du prix du loyer de l'argent.

Nous ne suivrons point les modifications que la politique et les différents phénomènes économiques ont entraînées dans les conditions des prêts; mais l'étude des différents documents qui sont arrivés jusqu'à nous, montre que le revenu du capital s'est abaissé avec une implacable régularité. Si parfois des événements politiques importants ont amené un relèvement, celui-ci n'a été que momentané.

Il est intéressant de constater que l'intérêt de la dette publique en Angleterre de 5% en 1715, tombe à moins de 3% en 1737, soit donc un abaissement de revenu de 2 unités pour une période de 22 ans.

Les consolidés anglais en 1822 rapportaient 4% et ne sont convertis en 3% qu'en 1854.

* * *

Ainsi que nous l'avons dit plus haut, nous avons eu spécialement en vue de rechercher quels ont été les taux moyens pendant la période contemporaine et nous avons naturellement été conduit à examiner quelles avaient été les variations des taux de la rente belge pendant cette période. On peut, en effet, considérer le taux effectif de la rente d'un pays comme étant un élément important d'appréciation du taux moyen des placements sûrs. Ce taux est évidemment un minimum et il faut compléter par d'autres recherches les taux souvent trop faibles déduits des cours de la rente.

Nous avons réuni, dans le tableau que l'on trouvera plus loin, les taux moyens des cours des divers fonds de la Dette publique en Belgique depuis leur origine et nous avons calculé, pour la rente 3% qui n'a pas été convertie, les taux effectifs correspondants* (col. 8).

Notre but n'étant pas de rechercher uniquement les variations du taux de placement en fonds d'État, nous avons fait figurer dans la colonne voisine (col. 9) le taux moyen des placements définitifs de la Caisse d'Épargne. Nous pensons en effet que ce taux moyen des placements définitifs peut être considéré comme représentant plus exactement le taux des placements sûrs.

Afin de faire ressortir l'importance des taux moyens des placements définitifs de la Caisse Générale d'Épargne et de Retraite de Belgique,

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* La partie de ce tableau qui se rapporte aux années 1840 à 1880 est extraite de l'ouvrage de *L. Demarteau.* Histoire de la Dette publique belge *publié en 1885.*

nous pensons qu'il est nécessaire de définir sommairement la nature de ces placements.

Les fonds confiés à la Caisse d'Épargne sont employés à l'acquisition de valeurs fixées par les articles 28 et 29 de la loi du 16 mars 1865 qui a institué cet établissement. Cette loi prévoit deux catégories générales de placements: les placements provisoires (art. 28) et les placements définitifs (art. 29). Nous ne nous occuperons pas des premiers et nous examinerons seulement les placements définitifs. Les fonds de la Caisse d'Assurances sur la vie créée il y a quelques années et annexée à la Caisse d'Épargne sont d'ailleurs placés de la même manière.

L'article 29 est ainsi conçu: « La part de l'actif de la Caisse destinée à un placement définitif est rendue productive par l'achat de valeurs des quatre catégories suivantes:

1°. Fonds publics belges ou autres valeurs garanties par l'État;

2°. Obligations sur les provinces, les villes ou les communes de la Belgique;

3°. Cédules ou prêts hypothécaires;

4°. Obligations des sociétés belges qui, depuis cinq ans consécutifs au moins, ont fait face à tous leurs engagements au moyen de leurs ressources ordinaires.»

Les conditions générales du marché, la nécessité d'avoir des fonds facilement réalisables et, enfin, d'autres considérations d'ordres divers, ont amené dans la composition générale du portefeuille de la Caisse d'Épargne des modifications dans l'importance relative des diverses catégories de valeurs qui y figurent. Nous avons recherché la composition moyenne de ce portefeuille en pour cent des diverses catégories et nous avons résumé ces indications ci-dessous:

TABLEAU INDIQUANT LE TAUX MOYEN DES COURS DES DIVERS FONDS DE LA DETTE PUBLIQUE ET LE TAUX EFFECTIF DE LA RENTE 3% AINSI QUE CELUI DES PLACEMENTS DEFINITIFS DE LA CAISSE GENERALE D'EPARGNE ET DE RETRAITE.

Années.	5%	4,50%	4%	3,50%	3%	2,50%	taux effectif corresp. à 3% Nominal	Taux moyen des Placements définitifs	Différence entre le taux effectif de la rente 3% et le taux moyen des placements définitifs	Observations
1	2	3	4	5	6	7	8	9	10	11
1840.....	100	....	92,58	....	70,80	54,44	4,237			
1850.....	...	90,06	84,35	....	63,83	49,80	4,699			
1858.....	...	98,61	94,42	....	74,01	56,23	4,053			
1859.....	...	97,39	93,19	....	73,34	54,73	4,090			
1860.....	...	97,28	96,34	....	76,57	55,71	3,917			
1861.....	...	99,16	97,69	....	79,46	57,11	3,775			
1862.....	...	99,68	98,23	....	82,60	58,635	3,631			
1863.....	...	99,86	98,26	....	82,82	60,84	3,622			
1864.....	...	99,60	97,27	....	81,815	58,74	3,666			
1865.....	...	99,54	96,77	....	83,435	58,55	3,595			
1866.....	...	98,29	95,35	....	84,995	56,46	3,529			
1867.....	...	99,32	94,98	....	85,01	56,48	3,528			
1868.....	...	101,00	96,42	....	86,04	59,63	3,486			
1869.....	...	102,72	98,63	....	89,72	62,43	3,343			
1870.....	...	101,97	....	....	89,67	61,74	3,345			
1871.....	...	102,37	96,32	....	94,39	62,03	3,178			
1872.....	...	102,33	100,42	....	97,11	64,19	3,089			
1873.....	...	101,58	99,98	....	77,34	63,95	3,878			
1874.....	...	102,69	98,59	....	73,85	61,54	4,062	4,20	0,138	
1875.....	...	103,72	98,88	....	73,63	61,26	4,074	4,27	0,196	
1876.....	...	104,23	98,95	....	74,10	61,63	4,048	4,21	0,162	
1877.....	...	103,04	99,65	....	76,15	62,67	3,939	4,07	0,131	
1878.....	...	103,94	99,86	....	76,53	63,12	3,920	4,15	0,230	
1879.....	...	104,51	102,95	....	80,37	65,94	3,732	4,12	0,388	Conversion du 4,50% en 4%.

TABLEAU INDIQUANT LE TAUX MOYEN DES COURS DES DIVERS FONDS DE LA DETTE PUBLIQUE ET LE TAUX EFFECTIF DE LA RENTE 3% AINSI QUE CELUI DES PLACEMENTS DEFINITIFS DE LA CAISSE GENERALE D'EPARGNE ET DE RETRAITE.

Années.	5%	4,50%	4%	3,50%	3%	2,50%	taux effectif corresp. à 3% Nominal	Taux moyen des Placements définitifs	Différence centre taux effectif de la rente 3% et le taux moyen de placements définitifs	Observations
1	2	3	4	5	6	7	8	9	10	11
1880.....	...	....	104,82	....	84,12	68,79	3,566	4,17	0,604	
1881.....	...	....	105,12	....	85,44	70,60	3,511	4,11	0,599	
1882.....	...	....	104,15	....	84,52	70,17	3,549	4,00	0,451	
1883.....	...	....	103,72	....	82,44	69,59	3,639	3,90	0,261	
1884.....	...	....	104,28	....	83,97	70,39	3,572	4,00	0,428	
1885.....	...	....	103,30	....	89,00	74,39	3,370	3,90	0,530	
1886.....	...	....	103,63	103,12	94,44	80,28	3,176	3,72	0.544	
1887.....	...	....	101,70	101,43	92,84	75,55	3,231	3,60	0,369	Conversion du 4% en 3,50%.
1888.....	...	....	....	101,86	92,86	80,62	3,230	3,53	0,300	
1889.....	...	....	....	101,93	93,83	80,51	3,197	3,50	0,303	
1890.....	...	....	....	102,36	97,62	84,61	3,079	3,48	0,401	
1897.....	...	....	....	101,23	98,62	87,54	3,041	3,48	0,439	
1892.....	...	....	....	102,00	98,90	88,96	3,033	3,47	0,437	
1893.....	...	....	....	102,71	101,26	93,81	2,962	3,44	0,478	
1894.....	...	....	....	102,66	101,97	97,77	2,942	3,435	0,493	
1895.....	...	....	....	102,20	101,33	96,48	2,960	3,30	0,340	Conversion du 3,50% en 3%.
1896.....	...	....	....	....	100,85	94,24	2,974	3,21	0,236	
1897.....	...	....	....	....	101,44	95,41	2,957	3,18	0,223	
1898.....	...	....	....	....	100,87	95,44	2,974	3,14	0,166	
1899.....	...	....	....	....	98,63	89,62	3,041	3,13	0,089	
1900.....	...	....	....	....	95,12	85,34	3,153	3,15	....	
1901.....	...	....	....	....	97,21	86,16	3,086	3,20	0,114	
1902.....	...	....	....	....	99,61	87,26	3,011	3,21	0,199	

Importance des différents placements *définitifs* de la Caisse d'Épargne de Belgique:

Rentes Belges	43 à 57 p. c.
Obligations de sociétés belges, des provinces et des communes	43 à 50 p. c.
Prêts hypothécaires et Prêts agricoles	1 à 3 p. c.
Avances aux sociétés d'Habitations ouvrières	3 à 7 p. c.

On voit que les rentes belges n'entrent que pour 50% environ dans la composition du portefeuille des placements définitifs.

Un premier coup d'œil jeté sur le tableau permet de constater la progression générale des cours de la rente belge pendant la période qui s'étend de 1840 à 1902. Il y a cependant lieu de signaler la chute importante qui s'est produite dans le cours de ces valeurs pendant les années qui ont suivi la guerre de 1870, de même que celle qui s'est produite pendant l'année 1900. Ces dépressions que l'on pourrait qualifier d'accidentelles, puisqu'elles n'ont eu qu'un effet momentané, correspondent à deux périodes d'activité industrielle et commerciale exceptionnelles pendant lesquelles, on le sait, les valeurs de tout repos sont généralement assez délaissées. Le public, pendant les moments de grande prospérité, emploie plutôt ses disponibilités à l'acquisition de valeurs à revenus variables qu'à des placements à revenus fixes mais certains.

Les faits que nous venons de signaler se traduisent, lorsqu'on examine les différents taux effectifs de la rente 3%, par un abaissement général: de 4.237 en 1840, ce taux va diminuant et tombe à environ 3% en 1872. Après cette époque, ce taux s'améliore et remonte jusqu'à 4% pour retomber ensuite, en 1902, à 3%.

L'élévation anormale des cours pendant la période qui précède l'année 1873 est due à ce que le nombre des titres qui se trouvaient encore sur le marché étaient peu considérable et que le remboursement au pair était à ce moment expiré. En 1873, un capital effectif de 240 millions, en 3 p. c., a été émis.

Le syndicat des banquiers a repris une partie de cet emprunt au taux de 77.20%.

Si l'on examine les taux moyens des placements définitifs de la Caisse d'Épargne, on constate également un abaissement continu présentant moins de fluctuations que celui de la rente. Ce portefeuille qui donnait un revenu moyen de 4.20 en 1874 ne donne plus qu'un revenu qui ne s'écarte guère de 3.20 depuis les cinq dernières années. Il importe de faire ressortir ici que le taux de 3.20 ne représente pas le taux moyen des produits d'un portefeuille qui n'aurait subi que peu de modifications, mais que, bien au contraire, ce portefeuille a doublé depuis ces dix dernières années et qu'en conséquence le taux moyen ne s'écarte guère du taux correspondant au taux des placements de tout repos pendant cette période.

De ce qui précède on peut conclure que si le prix du loyer de l'argent a depuis le commencement du dernier siècle une tendance marquée vers l'abaissement, il est intéressant de constater que cet abaissement semble avoir été quelque peu retardé par la crise qui a sévi si fortement sur tous les marchés financiers européens pendant ces dernières années.

Les variations sont, dans le passé, à tel point inégales et sujettes à des à-coups brusques et le plus souvent inattendus, que bien qu'une tendance se manifeste depuis plus d'un demi-siècle vers un abaissement continu, il serait peut-être imprudent d'en conclure que cette tendance continuera à se manifester dans l'avenir.

ABSTRACT.

NOTE ON THE VARIATIONS OF THE RATE OF INTEREST IN BELGIUM DURING THE CONTEMPORARY PERIOD.

By F. Hankar.

Our purpose has been to look into the fluctuations of the effective rate of interest of the Belgian Rentes, and especially the 3 per cent. Rentes, as the investment in obligation of the Belgian Public Debt may be considered as a first-class investment.

We have also looked into the rate of annual income derived from holdings which can be considered first class, such as holdings of definitive investments of the "Caisse Generale d'Epargne et de Retraite," guaranteed by the State, bonds of provinces, cities, and towns, mortgages and bonds of Belgian societies having, for at least five consecutive years, paid their interest due by means of their ordinary earnings.

The table annexed to the report shows the values and effective rates of the different classes of the Belgian Debt on one side, and of the holdings of definitive investments of the "Caisse Generale" on the other. Concerning this last, the aforesaid table shows that the effective rate was nearly 4.25 per cent. from 1873 to 1876; it went down to 4 per cent. in 1882, and remained about there until 1886; since then it fell successively to 3.50 per cent. about 1890, 3.30 per cent. in 1895, 3.13 per cent. in 1899, and has shown a positive tendency to increase in the last few years. It is now in the neighborhood of 3.20 per cent.

It would seem desirable that the actuaries of the different nations represented in this Congress should furnish similar information concerning the effective rate on safe investments in securities of their own countries.

KURZE NOTIZ.

DIE VERÄNDERUNG DES ZINSFUSSES IN BELGIEN WAHREND DER ZEITGENÖSSISCHEN PERIODE.

Von F. Hankar.

Wir haben uns damit befasst, die Schwankungen des Zinsfusses zu betrachten, der im belgischen Zins in Kraft steht, und besonders der 3%igen Rente, da die Kapitalsanlage in Papieren der belgischen Staatsschuld als eine Anlage ersten Ranges angesehen werden kann.

Weiterhin haben wir auch die Zinsfüsse der jährlichen Erträge in Betracht gezogen von Besitz, der als einer erster Klasse bezeichnet werden kann, wie feste Kapitals-Anlagen in der „Allgemeinen Sparkasse und Pensionskasse"; deren Werthe vom Staate garantiert sind, in Werthpapieren der Provinzen, Städte und Dörfer, Hypotheken und Papieren belgischer Genossenschaften, die seit mindestens 5 aufeinander folgenden Jahren die fälligen Zinsen von ihrem gewöhnlichen Einkommen gezahlt haben.

Die beigefügte Tabelle in unserm Bericht zeigt den Kurs und den Zinsfuss an, der bei den verschiedenen Sorten von Papieren der belgischen Staatsschuld auf einer Seite und den Anlagen in Papieren der Allgemeinen Sparkasse auf der andern Seite in Kraft sind. Bezüglich der letzteren giebt die erwähnte Tabelle an, dass die in Kraft befindliche Rate von 1873 bis 1876 4¼% war; in 1882 fiel der Kurs auf 4% und hielt sich auf ungefähr dem gleichen Prozentsatz bis 1886: dann sank die Rate nach und nach auf 3½% um das Jahr 1890 herum; in 1895 auf 3.30%, in 1899 auf 3.13% und zeigte schliesslich eine steigende Tendenz in den letzten wenigen Jahren; der Kurs ist jetzt ungefähr 3.20%.

Es erscheint danach wünschenswerth, dass die Statistiker der verschiedenen Nationen, die bei diesem Congress vertreten sind, ähnliche Informationen bezüglich der bestehenden Zinsrate der Werthpapiere ihrer Länder mit Berücksichtigung auf Kapitalsanlage ertheilen sollten.

THE PROBABLE FUTURE COURSE OF THE RATE OF INTEREST.

BY

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In computing the necessary premiums and reserves for all kinds of life assurance business, there are two elements which are of vital importance to the Actuary, viz., the rate of mortality, and the rate of interest.

The first of these has been the subject of most careful and exhaustive study for many years past, and the recently published results of the British Offices' experience, will we hope, enable us to gauge with still greater exactitude the rates of mortality which are likely to prevail amongst different classes of assured lives.

It is, however, a somewhat remarkable fact that comparatively little attention has been given to the rates of interest which we are likely to obtain.

It must be remembered that the rate of mortality is of more imporance during the early years of assurance than the rate of interest, but as the "Death Strain" becomes limited by the growth of the reserve, so the "Rate of Interest" becomes of more pressing importance. For example, take the case of an endowment assurance on a young life with a term of 40 years. For several years after the assurance is effected, the reserve is small and consequently the amount at risk is large, and a very slight increase or decrease in the rates of mortality will have a much greater effect than a similar variation in the rate of interest. But towards the end of the 40 years the reserve approaches the full sum assured, and consequently the variations in the rates of mortality experienced are of far less importance, while on the other hand, the rate of interest obtained on the reserve is the principal source of profit or loss. What is true of one particular case is, in a modified degree, true of the whole mass of life assurance business considered together. Offices which have been only a short time in existence or which have been doing a very rapidly increasing business have very small funds as compared with the amount assured, and consequently by far the most important consideration to them is the rate of mortality. It would seem possible that these offices do not always pay sufficient attention to the rate of interest which they will obtain in the future, and which will be of much greater importance when the average reserves held are greater.

Speaking generally the greater the proportion of Insurance Funds to the total sum assured, the less important does the rate of mortality become, and the more important the rate of interest.

Taking the figures of the British Board of Trade returns we find that in 1893*

* The returns published in 1893 refer chiefly to accounts for the year ending December 31, 1891. Similarly, those for 1903 refer to December 31, 1901.

The total sum assured..... 602,956,961
The total assets..... 217,526,413
Proportion of Assets to sum assured, 36.08 per cent.

And for 1903

The total sum assured..... 868,908,595
The total assets..... 321,280,686
Proportion of assets to sum assured, 36.98 per cent.

At first sight the comparatively small increase in the proportion of assets to total sum assured appears somewhat remarkable, but it must be remembered that the rate of increase of insurance business cannot continue indefinitely, and it is therefore to be expected that the proportion will considerably increase in the future.

Of recent years the endowment assurance policy has become more and more general, and this fact alone will be the cause of an enormous increase in Insurance funds, on which it will be of great importance that a satisfactory rate of interest shall be obtained.

Another feature of the Insurance business of recent times, which should emphasise the enormous importance of interest yields in the future, is the employment of Sinking Fund Policies, which has become very general. It is now quite a usual thing for trading companies to borrow by means of Debentures repayable at a fixed date, the necessary amount for such repayment being provided for by means of a Sinking Fund Policy. It is true that the premiums for these policies are generally calculated at a low rate of interest, but the total amount insured is often very large, and the term perhaps 50 years or more. Surely before entering into numerous contracts of this nature it is most important that the possibilities of any considerable fall in the interest rates of the future should be most carefully considered. If the granting of these policies is persisted in and the demand for them continues to grow at the same rate that it has in the past, it would seem possible that eventually some Companies will be the holders of such large funds as reserve for this class of business, that the amount held on account of life assurance business may be comparatively unimportant and a very small difference in the interest yield obtained on their total invested funds may be the cause of grave embarrassments.

It must also be remembered that it may become necessary to realise large blocks of securities, when sinking fund policies of considerable amounts fall due, and it is quite possible that this may be at a time when prices are greatly depressed.

Quite recently one of our oldest insurance companies has formulated an entirely novel scheme, by which it undertakes to receive deposits of £1,000 and upwards to be accumulated at 3⅜%, and returned at death, or earlier, by arrangement. That is to say they undertake to accumulate large sums of money for very long periods at the comparatively high rate of 3⅜%. Surely this is a most dangerous proceeding. Suppose a young man aged 21 deposits £10,000 and lives to age 75, his investment will then have accumulated to £60,040, while if he should live to 91 it will have amounted to considerably over £100,000. Can we dare to anticipate that during so long a time it will be possible to keep large sums of money invested to yield so high a rate as 3⅜%?

In estimating the future rates of mortality we are guided by past experience. But although much may be learnt from a careful study of the rates of interest in the past, it must be admitted that we can never hope to estimate the interest rates of the future with anything like the same degree of precision as that with which we can estimate mortality rates.

Given the same general influence we may expect the same results as have previously been witnessed, but we are forced to recognize that interest rates are subject to constant fluctuations, and occasionally disturbances occur whose effects are so considerable, that the most carefully planned financial arrangements are entirely upset. It would seem, therefore, that the most which we can attempt is to notice the general tendency of interest rates, and to study carefully the effect of various disturbances which are likely to occur.

There has, undoubtedly, for a considerable time past been a tendency for interest rates to fall. It is difficult to obtain exact records of general interest rates extending over long periods, but I submit some diagrams, which I think will sufficiently emphasize the point. The causes of this fall have apparently been the constant accumulation of wealth and the greater safety afforded to the investor.

The first of these causes is, of course, only effective when there are not sufficient opportunities for the remunerative investment of the accumulated wealth. It is necessarily a case of supply and demand.

In times gone by it was most difficult to raise large sums of money, and consequently it was not attempted unless there was urgent necessity, or good reason to expect large profits. Although in the past large sums of money were sometimes invested in hazardous undertakings where there was the possibility of very large gains, there was not any very great demand for investments yielding only a small return. As wealth accumulated there was a greater and greater demand for safe investments. This demand for safety has been to a large extent met by the growth of Banking facilities and by legislation regulating the formation and scope of Joint Stock Companies, which, of course, have only become possible on account of the general progress of civilisation.

A little consideration will show that although the rate of interest may over a long period of years tend to decline, yet it is only reasonable to expect that there will be temporary disturbing elements. Thus the rate of interest may on account of some disturbance, such as war or interruption of credit, rise and remain for a time at a higher level. On the other hand, a sudden accumulation of funds requiring investment, or a decrease in the securities available for the investment of such funds, may cause a temporary depression of interest rates. When speaking of the general tendency over a long period of years, such influences as these must be considered as disturbances.

We have then the general idea, which would seem to be borne out by the experience of the past, viz., that there is a tendency for interest rates to fall continuously, but that the continuity of the fall is occasionally disturbed, the periods of disturbance varying considerably in duration, but the general tendency to lower rates being eventually resumed.

In any attempt to gauge the future rate of interest, it would therefore seem that we must examine the causes which have been briefly referred to above.

As to the accumulation of wealth, there seems every reason to anticipate that it will continue unless some extraordinary event occur, which will completely change the whole course of the world's history.

Obviously it is not within the scope of this paper to deal with this side of the question. It has been pointed out above that there has been a constantly increasing demand for investments which offer the minimum of risk; and at the present time the funds requiring such investment are to a large extent "Trust Funds" and the funds of Insurance Companies.

As wealth accumulates, the rate of interest which it can earn must

decrease, unless the demand for loanable capital grows in proportion. The demand arises from two main sources, viz:

1. Capital required to carry on undertakings of a more or less remunerative nature.
2. Debt contracted on account of some catastrophe, such as War.

At the present time immense sums of money are constantly being spent upon charitable objects, which cannot be considered as remunerative from a financial point of view, but the benefits conferred are so considerable that it is to be hoped that this opening for the expenditure of wealth will be an ever increasing one.

There is, however, a growing tendency for Municipal and other bodies to expend enormous amounts upon unproductive undertakings which are supposed to be in the nature of improvements. The question as to the advisability of these outlays is a very vexed one. In many cases Municipal Corporations have taken over large trading concerns, and, it is alleged, have been able to crush all competition, owing to their ability to make up any loss from the rates. Without for a moment attempting to discriminate between the arguments offered by the different parties, it must be admitted that the rapid accumulation of debt by these bodies gives considerable cause for anxiety as to the future.

It would be impossible in this short paper even to mention the many opportunities of remunerative investments which have been afforded by the numerous demands of modern life. Buildings, Railways, Shipping, etc., millions have been invested in them. As money requiring investment has become more plentiful, undertakings have been completed which previously would not have been contemplated. When money can be borrowed at 3 per cent. for a long period it is clearly advisable to undertake works, which it would not be advisable to undertake when 5 per cent. would have been charged. The very low rates of interest at which our Municipal Corporations have been able to borrow, have undoubtedly encouraged them in spending large sums of money on many objects, some of which, at the present time at least, would hardly seem to warrant such expenditure. The lower the rate of interest falls, the larger would seem to be the possible field of investment, and therefore it follows that the general rate of the fall should become slower and slower.

There are at the present time hundreds of proposed works which are awaiting the time when the necessary capital can be obtained at a sufficiently cheap rate to warrant their commencement.

However, the fact remains that wealth is accumulating, and it seems most probable that it will accumulate in the future at a faster rate than the opportunities for its useful employment. That is to say, it would certainly seem that in order to employ all the wealth which will probably accumulate in the future, it will be necessary to be satisfied with lower rates of interest. A demand for accumulated funds is also created by catastrophes such as Wars, Famines, etc.

The first of these is by far the most important, both on account of the suddenness with which it generally makes its appearance, and also the immense amount of wealth which it absorbs in a limited time.

In speaking of the future rates of interest, we are of course bound to consider such a vital cause of disturbance as War. There is on the one hand the decidedly comforting reflection that wars become less likely as civilisation and trade progress, and the interests of various nations become more interwoven with each other. On the other hand, it must be remembered that the cost of carrying on a war has increased enormously. At the present time there does not appear to be danger of

any really serious trouble, although it would be easy to point to several quarters of the globe where possibilities exist which we should all be the happier to see removed. We must, I fear, admit that wars in the future *are* to be expected, but their effect must always be temporary as regards their disturbance of interest rates, although the period of such disturbance may be of very varied duration.

It will at this point be convenient to examine the effect of the recent South African War in temporarily raising interest rates, and at the same time to allude to a disturbance of the opposite nature, which occurred some short time previous to the war, when interest rates were temporarily depressed to a level which was artificial, and recovery was therefore under any circumstances to be expected.

From 1885 to 1890 trading activity was steadily increasing, then came a climax of disasters with the Baring collapse, the Silver trouble in America, and the Banking Crisis in Australia. A period of dull trade followed, when money became so cheap that the Bank rate was at 2 per cent. for over two years, and "Call money" was lent at the extraordinarily low rates of ¼ to ½ per cent. per annum. From 1890 to 1896 enormous sums of money were available for investment, but enterprise was for the time restricted, and there was not sufficient demand for the accumulations available. A large proportion of this money could only be invested in Trustee Securities, and even where there was no restriction as to the nature of the investment, there were thousands of investors who felt that no security could be sufficient, unless it was one available for Trustees, and of all trustee investments that most sought after was Consols. It is an extraordinary thing that, with many people, the higher the price of a stock rises, the more convinced do they become that there is no other so desirable. Thus when Consols were at 110, they were eagerly sought after, although there were many other investments available, where the security of the interest and capital was absolute, and which showed a much more satisfactory yield, thus:—

Consols bought at 110 in March, 1896, assuming repayment at par in 1923, gave an effective yield of about 2 per cent.

India 3½ per cent. Stock bought at 119½, and redeemable in 1931 gave an effective yield of 2.6 per cent.

Great Western Railway 4 per cent. Debenture Stock @ 157 gave a yield of 2.57 per cent.

Midland Railway 3 per cent. Debenture Stock @ 120 gave a yield of 2.52 per cent.

London & Northwestern Railway 3 per cent. Debenture Stock @ 120 gave a yield of 2.52 per cent.

However, Consols *were* preferred, and at the same time the supply was continually diminishing both on account of the Sinking Fund operations, and the investments for the Post Office Savings Bank. It has been mentioned above that call money was obtainable at very low rates, and as the price of Consols was continually rising, there was a splendid opportunity for operations therein. Thus a person with £5,000 could purchase £50,000 Consols at 110, borrowing £50,000 from a Bank at 1 per cent., and he thus made 17½ per cent. on his money besides a possible further gain if he sold out at a higher price.

It is evident, therefore, that the very low level of Interest rates obtaining in 1896 was not the result of the steady decline which we have already referred to, but was to a great extent the result of special circumstances. It is, we know, easier to be wise after the event than before,

but it is certainly to be hoped that mistakes of the past may prevent some similar mistakes of the future. It is now evident that in 1896 many securities (particularly Consols) were standing at a price at which it was unadvisable to hold, and an absolute mistake for an investor such as a Life Assurance Company to purchase.

It may be argued by some that an Assurance Company requires a permanent investment, and having once purchased a satisfactory security should disregard market fluctuations. That an Assurance Company should not countenance what is generally known as "jobbing in stocks" will, I think, be generally admitted, but surely there must be times when it is advisable to sell certain securities in order to replace them by others, which, on careful consideration, it is found will prove a better investment at the relative prices of the day.

Many people appear to be under the impression that the recent very low level of prices, as compared with those ruling in 1896, has been caused entirely by the South African War. The War has undoubtedly had a very great effect; in fact, a far greater effect than was ever anticipated, but there have been several other very powerful agencies tending to lower the price of high class securities. Money market conditions had changed considerably before the War, and in any case would have continued to change, even if the War had not come.

It would, I think, be easy to show that the condition of the foreign exchanges and the general requirements of active trade would have prevented the possibility of a 2 per cent. Bank rate, and consequently there could not have been the same opportunity for purchasing stocks and depositing them with Banks, in order to make profits, such as those already referred to in the case of Consols.

Then, again, the Colonial Stock Act by adding many millions to the securities available to Trustees, necessarily lowered the general level of prices of such securities. The effect of this addition to the list of Trustee securities has been very great, and is likely to continue for some time to come, for undoubtedly many Trustees will take some considerable time to get used to the idea, that anything Colonial can possibly be suitable for the investment of trust fund.

At the present time a much higher yield can be obtained on most of the Colonial inscribed stocks (that is, those authorised for the investment of Trust funds), than that shown by other classes of trustee investments, thus for example,

New South Wales	3½ %	(1924)	@ 100	yields	3:	10:
New South Wales	3 %	(1935)	@ 90	"	3:	10:
New Zealand	4 %	(1929)	@ 108	"	3:	10:
New Zealand	3½ %	(1940)	@ 103	"	3:	7: 3
New Zealand	3 %	(1945)	@ 92	"	3:	6: 7
Victoria	4 %	(1920)	@ 106	"	3:	10:
Victoria	3 %	(1949)	@ 91	"	3:	8: 2
Natal	3 %	(1949)	@ 93	"	3:	6: 4
Ceylon	3 %	(1940)	@ 96	"	3:	4: 2
Canada	3 %	(1938)	@ 103	"	2:	17: 8

At first sight it would seem reasonable to anticipate that the rates obtainable in Colonial Inscribed Stocks should rapidly approximate to those yielded by other trustee securities, but there are several reasons which may lead us to think that this will not be so. The Colonies are by some writers accused of extravagance, and if this eventually should be proved by the result to have been unfortunately correct, it is possible that there may be occasional periods of difficulty, when the whole list of Colonial Inscribed Stock may become more or less unpopular. In any

case it is known that very large amounts will be required by the Colonies in the near future, and these new issues are likely to prevent any very considerable rise in price for the next few years.

Another cause for the lowering of prices has been the recognition by many large investors of the attractions offered by other classes of securities such as Foreign and Colonial Municipal Stocks and Bonds, American Railway Gold Bonds, Trading Companies' Debentures, etc., and it is to be expected that there will be a general tendency for those large investors who most carefully consider the possibilities of the various securities available to steadily widen the field of their investment.

There would seem to have been yet another powerful factor operating in the same direction. During the last year or two we have seen with astonishment the formation of numbers of enormous trusts with capital amounting in the aggregate to hundreds of millions. Speculation in American Rails has been carried to such an extent that we are becoming accustomed to hear of two or three hundred thousand shares being purchased in a single block. It is impossible to measure the effect which these transactions have had on the general rates of interest obtainable, but it is quite certain that it has been very considerable.

However, the main portion of the fall in prices has, of course, been due to the South African War.

It is difficult to explain the exact effects of a war upon the investment market. Some trades are adversely affected whilst others are unusually stimulated, and consequently, although money is withdrawn in some directions, it is needed in larger amounts in others.

The South African War has been the cause of an increase of £159,000,000 to our national debt. As shown by the Parliamentary paper giving particulars up to 31st March, 1903, the various items of this amount are as follows:—

92,000,000 Consols.
30,000,000 National War Loan repayable at par 1910.
14,000,000 3 per cent. Exchequer Bonds repayable at par 1905.
10,000,000 3 per cent. Exchequer Bonds repayable at par 1903.
13,000,000 Treasury Bills.

Whilst large issues such as these are being made, it is invariably the case that large amounts of money, which ordinarily would be applied in purchase of trustee stocks, are held over with the intention of applying for the new issues. This certainly has taken place to a great extent, and has had a very decided effect upon prices.

One of the results of the recent war is not, however, to be anticipated in the majority of other wars, which may unfortunately occur in the future, viz., the sudden cessation of very large supplies of gold from the mines. During 1898 South Africa produced 4,000,000 ozs. of gold, a very large portion of which reached Great Britain; the sudden withdrawal of this supply had a marked effect upon the money markets.*

It therefore appears evident that the very low rates of interest ruling about 1896 and 1897 must be considered as abnormal, and similarly the very high rates which have recently prevailed have been due to the various causes set out above. Thus we have had two disturbances in what would seem to be the general downward tendency of the rate of interest. These disturbances have been in the opposite

* Note.—The value of the total gold production of the world steadily increased for many years, and in 1899 reached the total of £65,066,000, but in 1900 fell to £52,621,000.

direction, and this is the cause of the extraordinary fall in the price of high class securities which has taken place.

The extent of the fall in price has varied very considerably, and in some cases there have been special causes operating, as, for example, the guaranteed stocks of some Indian Railways, where the peculiar conditions of the contract as to the Government's option to purchase have had a most disturbing effect in that class of security. In all high class securities, however, the interest obtainable to-day is much higher than it was in 1896. Notwithstanding the fall in the market value of the Stocks held by many Insurance Companies, it must be remembered that in most instances the gain has been much more than the loss. British Companies have for the most part entered into contracts for assurance based on a 3 per cent. rate of interest. The term of the majority of these contracts extends over many years, and necessitates the continual investment of increasing reserves. It is evident, therefore, that the higher rate of interest obtainable on future investments is of more importance than the fall in the value of some of the assets at present held. If the rate of interest falls to its former level, the securities held as a permanent investment will recover in price and no loss will have been sustained, although there will have been considerable profit arising from the more remunerative investments made. If, on the other hand, the rate of interest should continue at its present high level, then the Insurance Companies will be the gainers to the extent of the higher interest which they will continue to obtain.

It now remains to say a few words as to the probability of a gradual or rapid recovery of the present low level of prices of high class investments.

During the early periods of the war in South Africa it was the general opinion that prices would very rapidly recover and therefore that large investors should endeavour to obtain as many long term investments as possible while they had the opportunity. On the other hand, some of our most skilful borrowers, such as large Municipal Corporations, endeavoured to borrow for short terms only at the higher rate of interest prevailing, in order that they might defer making issues of long term stock, until more favourable opportunities should arise for obtaining better prices.

There would appear to be good reason for anticipating that prices will recover to a certain extent within a fairly short period; but there are, I believe, many reasons for assuming that a considerable time will elapse before a recovery to normal prices is reached. It has already been mentioned that several of our Colonies are awaiting a favourable opportunity to borrow large amounts, and similarly there are numbers of Municipal Corporations and various trading concerns which will require immense sums of money in the near future. It is therefore to be expected that, as prices rise, there will constantly be new issues from the above sources which will absorb a large amount of investment money.

The present is a time of exceptional activity in the improvement of all kinds of machinery. In America especially there is a marked tendency to replace mechanical contrivances, which are considered out of date, by the most improved modern inventions; thus, for example, all kinds of electrical engines are rapidly taking the place of steam. It is considered by those most competent to judge that this movement will continue, and consequently we may expect that there will, for some time to come, be a demand for capital in order to effect these changes.

There have been recently large numbers of emigrants to the Colonies,

more particularly to Canada, and, as is well known, all newly settled countries require money in order to develop their resources.

There are at the present time many holders of high class securities who would not be satisfied with the comparatively low rate of interest yielded, if it were not that they anticipate the possibility of realising at a profit. It may be taken for granted that on every favourable opportunity in the near future, there will be some selling from this source.

Lastly, as regards Consols.

It would seem, as was very clearly set out in a recent number of the Statist, that about £51,000,000 fresh debt will be created during this year, whilst the redemptions from all sources will amount to a little over £32,000,000, thus leaving a net increase of over £18,000,000. During the next four years the net redemptions of debt must be much smaller than they were in the four years previous to the war.

Thus it appears certain that little recovery in the price of Consols is to be anticipated from the operation of the redemption of debt by the Sinking Fund for some years to come.

The most probable future course of the rate of interest (providing no exceptional disturbances occur) would therefore seem to be:—

A fall, small but rapid, within the next year or two; then a less rapid fall lasting possibly for several years; and gradually settling down to a general tendency to fall at a slower and slower rate.

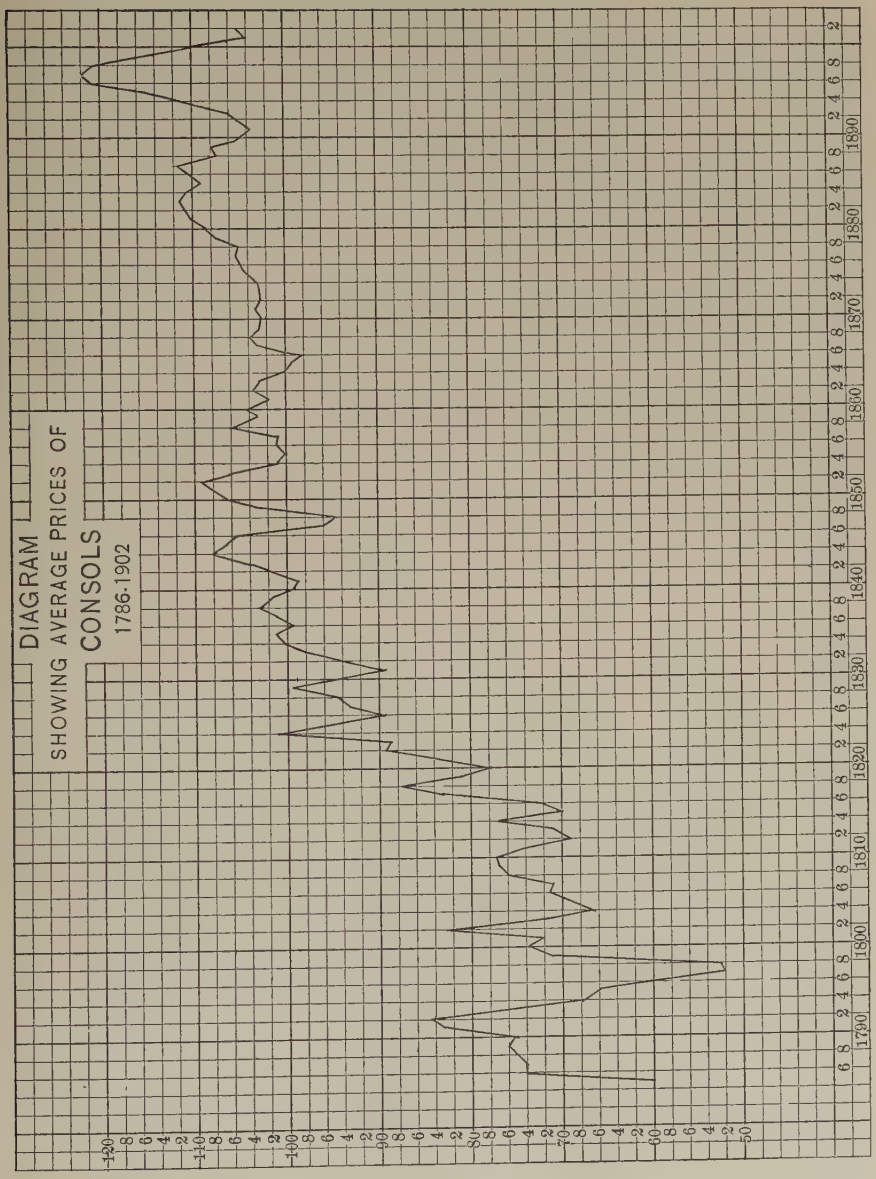
DIAGRAM
SHOWING AVERAGE PRICES OF
CONSOLS
1786-1902
120
110
100
90
80
70
60
50
1790
1800
1810
1820
1830
1840
1850
1860
1870
1880
1890

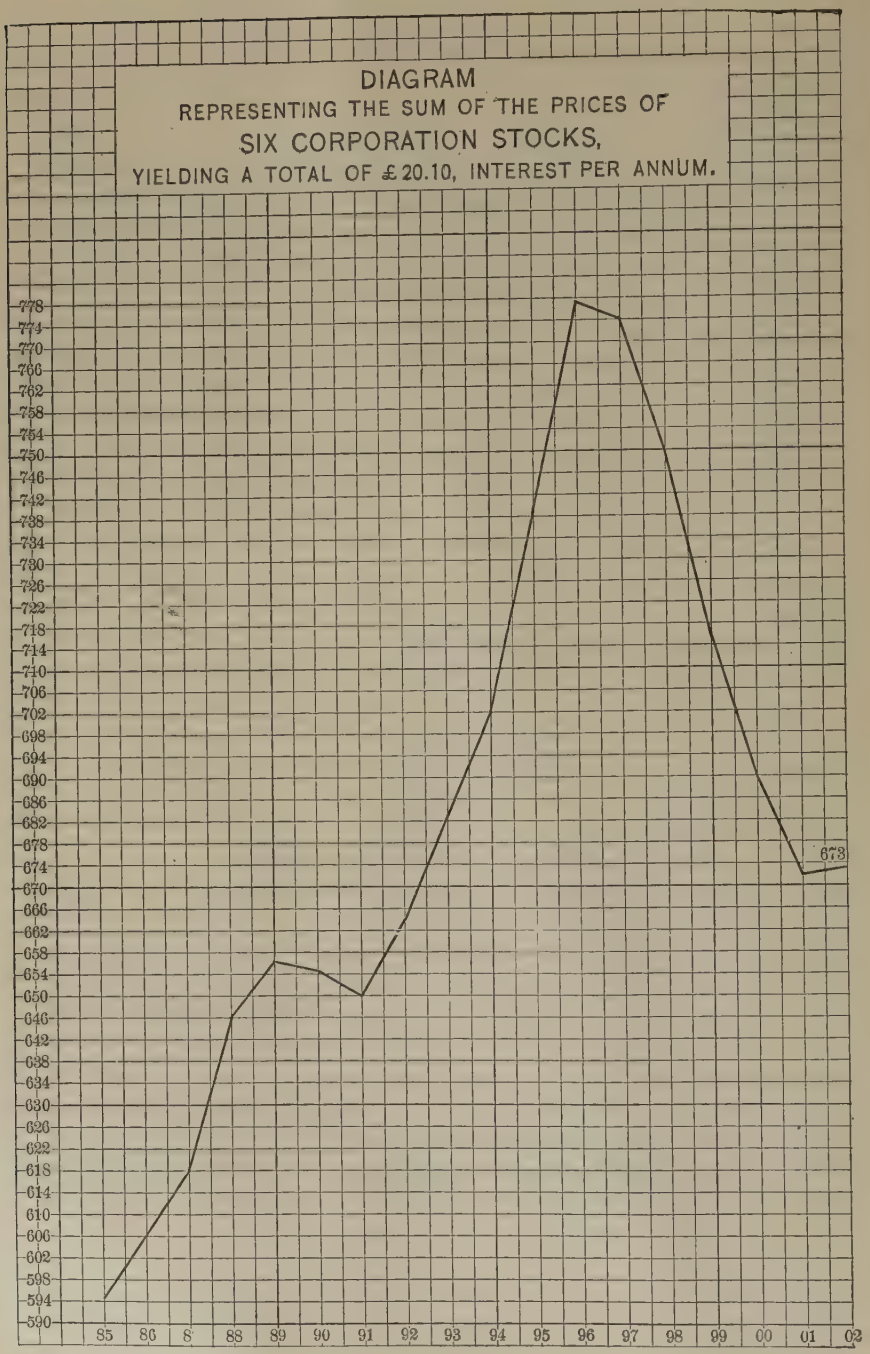
DIAGRAM
REPRESENTING THE SUM OF THE PRICES OF
SIX CORPORATION STOCKS,
YIELDING A TOTAL OF £20.10, INTEREST PER ANNUM.
778
774
770
766
762
758
754
750
746
742
738
734
730
726
722
718
714
710
706
702
698
694
690
686
682
678
674
670
666
662
658
654
650
646
642
638
634
630
626
622
618
614
610
606
602
598
594
590
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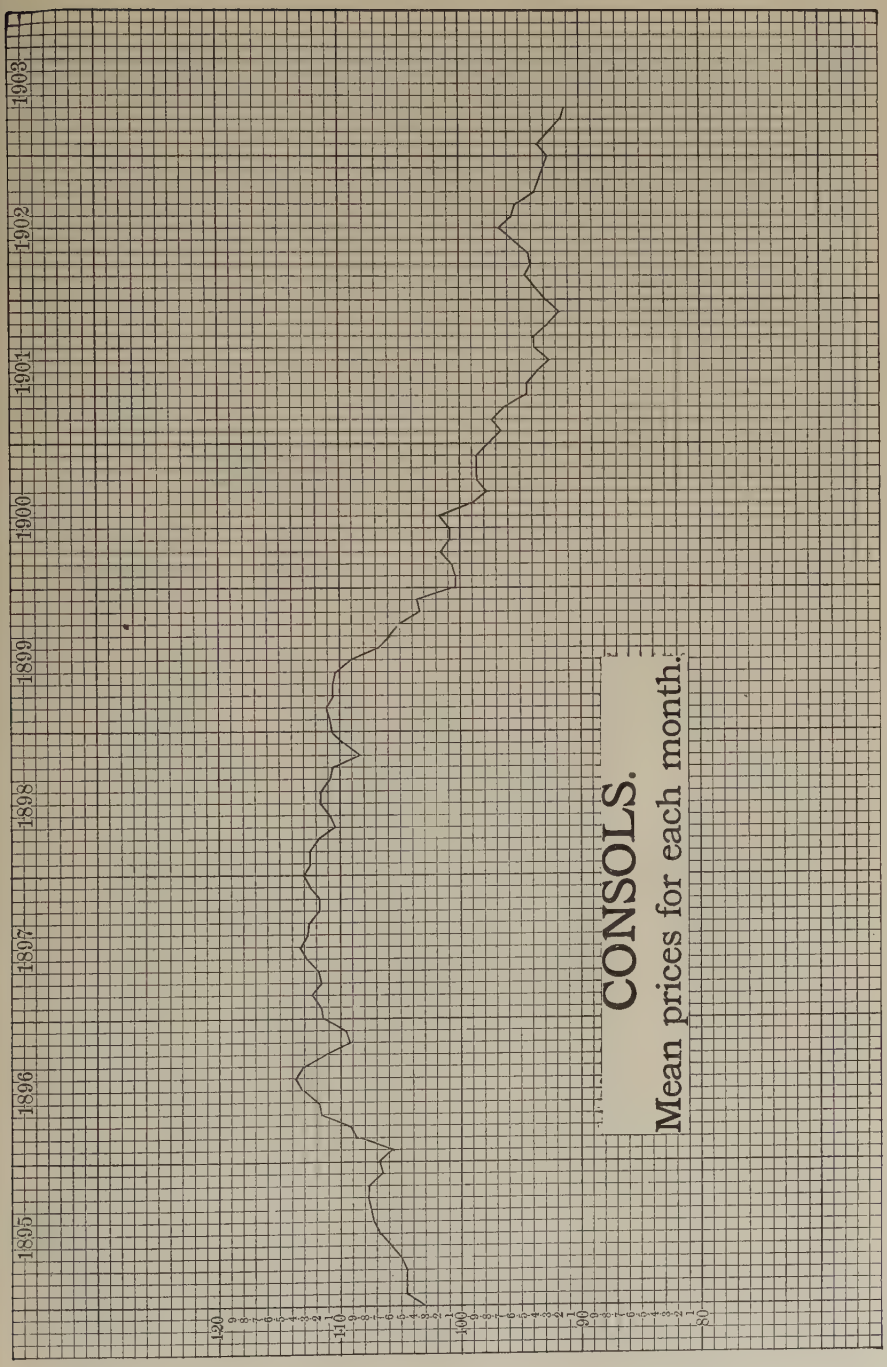
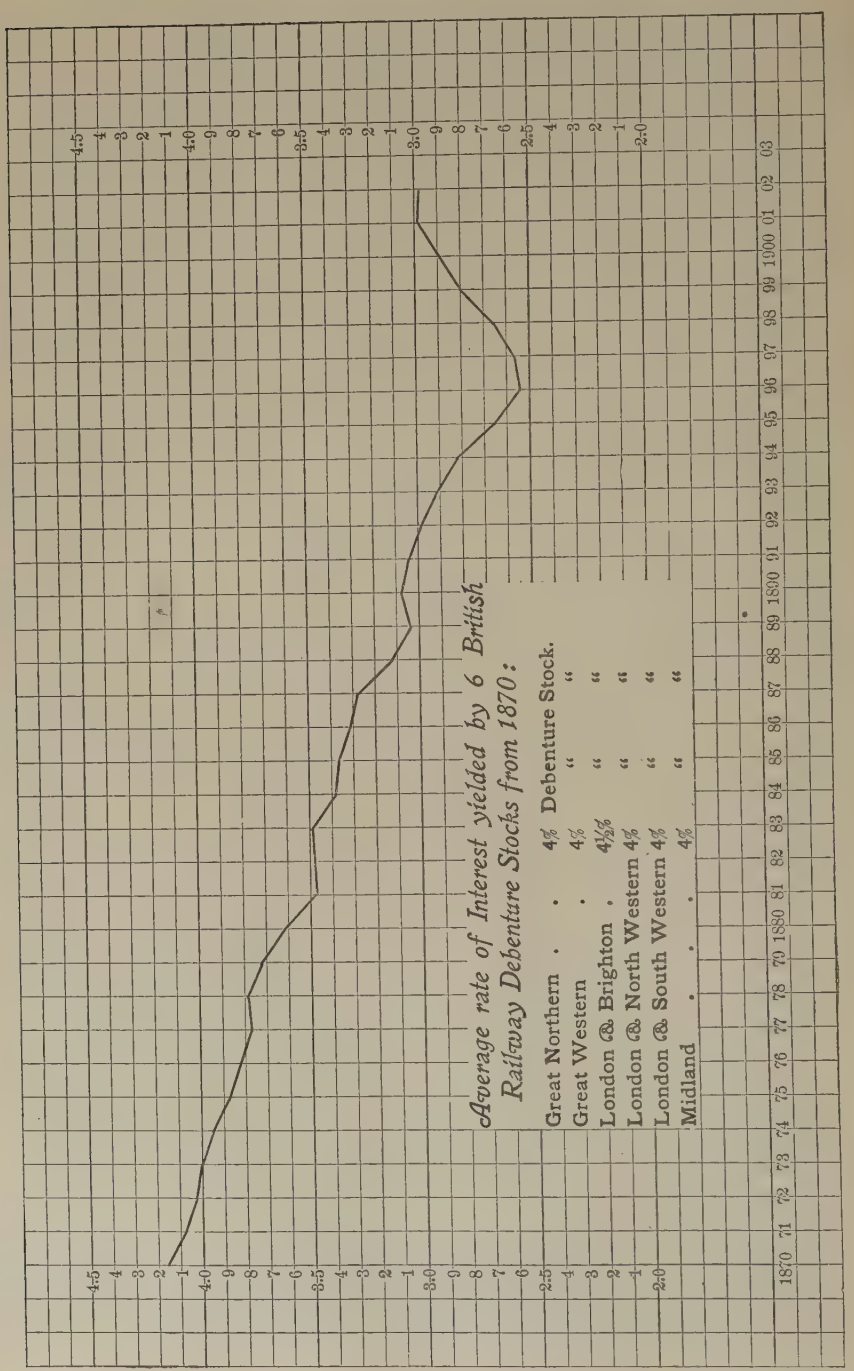
01
02


CONSOLS.
Mean prices for each month.
1895
1896
1897
1898
1899
1900
1901
1902
1903
120
110
100
90
80


Average rate of Interest yielded by 6 British Railway Debenture Stocks from 1870:
Great Northern . . 4% Debenture Stock.
Great Western . . 4% " "
London & Brighton . 4½% " "
London & North Western 4% " "
London & South Western 4% " "
Midland . . . 4% " "
1870 71 72 73 74 75 76 77 78 79 1880 81 82 83 84 85 86 87 88 89 1890 91 92 93 94 95 96 97 98 99 1900 01 02 03

RÉSUMÉ.

COURS PROBABLE DU TAUX DE L'INTÉRÊT DANS À L'AVENIR.

Par J. Burn.

On a étudié avec le plus grand soin depuis un nombre d'années le sujet des taux de mortalité, mais il est quelque peu étrange qu'on ne se soit presque pas préoccupé des taux de l'intérêt que nous pouvons espérer recevoir à l'avenir.

Bien que le taux de la mortalité soit d'une bien plus grande importance, lorsque la réserve placée sur une police est petite il faut se souvenir que le taux de l'intérêt augmente d'importance à mesure que la réserve augmente. L'augmentation dans la somme des assurances à terme et des polices à fonds perdus ainsi que d'autres classes d'affaires qu'entreprennent maintenant les compagnies d'assurance devraient faire ressortir la grande importance qu'il y a à considérer soigneusement les taux probables d'intérêt dans l'avenir.

Bien que l'expérience du passé ne puisse être un guide aussi sûr pour l'avenir qu'elle l'est pour les taux de mortalité, on peut cependant en retirer d'utiles renseignements.

Il y a peu de doute que le taux de l'intérêt n'ait une tendance à s'abaisser depuis un nombre d'années. Cette tendance générale a nécessairement été sujette à divers soubresauts temporaires et il semble qu'il y ait de bonnes raisons de croire que l'histoire se répétera sous ce rapport. La fortune continue à s'accumuler, et il semble probable qu'elle continuera à s'accumuler à l'avenir plus vite que ne se produira la demande pour son emploi utile. Mais il faut se souvenir que lorsque le taux d'intérêt est bas on entreprend des travaux qui ne seraient même pas projetés si le taux était élevé, de sorte qu'il semble s'en suivre, qu'excepté en cas de crises, les taux de l'intérêt ne doivent tomber que d'une manière décroissante.

Durant l'année 1896 le taux de l'intérêt était anormalement bas, et les prix étaient à un niveau artificiellement élevé. L'effet de la Guerre a été de causer une chute rapide dans le prix de toutes les valeurs de premier ordre, mais il faut noter qu'il y eut d'autres facteurs agissant dans le même sens (par exemple le Colonial Stock Act).

Par conséquent la chute extraordinaire des prix qui s'est produite a été due à deux éléments de trouble agissant dans des directions contraires.

Les compagnies d'assurance dont les fonds augmentent et continuent à augmenter gagneront plutôt à cette dépréciation récente des valeurs de Bourse.

L'auteur avance plusieurs raisons qui semblent prouver qu'on ne peut s'attendre d'ici à quelques années à voir les prix remonter.

La marche la plus probable du taux de l'intérêt à l'avenir (pourvu qu'il ne se produise pas de crises exceptionelles) semble donc être:

Une baisse faible mais rapide qui se produira d'ici un an ou deux; puis une baisse moins rapide qui durera probablement plusieurs années et se convertira graduellement en une tendance générale à baisser d'une manière de plus en plus lente.

KURZE NOTIZ.

DER WAHRSCHEINLICHE LAUF DES ZINSSATZES IN DER ZUKUNFT.

Von J. Burn.

Seit langen Jahren hat man sich ganz besonders erschöpfend mit dem Studium der Sterblichkeitsraten befasst, doch ist es bemerkenswerth, dass man den Zinsraten so wenig Aufmerksamkeit gewidmet hat, die wir in Zukunft haben könnten.

Obgleich die Sterblichkeitsrate von bedeutend grösserer Wichtigkeit ist, wenn der Nutzen an einer Police gering ist, muss man doch berücksichtigen, dass der Zinsfuss mehr und mehr an Bedeutung gewinnt, wenn der Nutzen an einer Police sich steigert. Die Erhöhung der Beträge von Ausstattung-Versicherungen und Amortisations-Fonds-Policen, sowie verschiedener anderer Arten von Geschäften, die heute zu Tage von Versicherungs-Gesellschaften unternommen wer-

den, sollten besonderen Nachdruck auf die Bedeutung einer sorgfältigen Berücksichtigung der Zinsraten der Zukunft legen.

Gemachte Erfahrungen können nicht so zuverlässig als Richtschnur für die Zukunft dienen, wie im Falle von Sterblichkeitsraten, dennoch wird man jedoch finden, dass man sehr viel davon lernen kann.

Es unterliegt keinem Zweifel, dass man in den vergangenen Jahren eine allgemeine Tendenz zum Fallen des Zinsfusses gehabt hat, und hat diese fallende Tendenz natürlicher Weise verschiedenartige Verwirrungen temporärer Art im Gefolge gehabt. Man kann auch wohl mit Recht erwarten, dass dies auch in der Zukunft der Fall sein wird. Reichthum sammelt sich fortdauernd an und man kann annehmen, dass dies in noch grösserem Maassstabe in der Zukunft der Fall sein wird, und man muss in Berücksichtigung ziehen, dass, wenn der Zinsfuss ein geringer ist, Arbeiten unternommen werden, die nicht angefangen werden würden, wenn der Zinsfuss höher ist, und es scheint hieraus hervorzugehen, dass die allgemeine Tendenz des Sinkens der Zinsraten (abgesehen von den Verwirrungen) abnehmen müsste.

Während des Jahres 1896 war der Zinsfuss ganz aussergewöhnlich niedrig und Preise auf einer künstlich geschraubten Höhe. Der Einfluss des Krieges verursachte einen rapiden Niedergang der Preise aller guten Werthpapiere; es ist jedoch dabei zu bemerken, dass auch noch andere Gründe dafür vorhanden waren (so z. B. der „Colonial Stock Act").

Der ausserordentliche Fall der Preise kann daher zwei aufrührerischen Elementen zugeschrieben werden, die in entgegengesetzter Richtung wirkten. Versicherungs-Gesellschaften, deren Kapital sich vermehrt und wahrscheinlich auch noch eine beträchtliche Zeit lang beständig vermehren wird, werden sicherlich durch die kürzliche Herabsetzung der Marktwerthe gewinnen.

Aus verschiedenen zwingenden Gründen scheint eine sehr bedeutende Besserung der Werthe für eine längere Zeit auch noch nicht zu erwarten sein.

Höchstwahrscheinlich wird deshalb in der Zukunft der Kurs des Zinsfusses folgender sein (wenn nicht ausnahmsweise Störungen eintreten):

Ein Fallen, vielleicht gering, aber plötzlich, innerhalb der nächsten ein oder zwei Jahre; dann ein weniger rapider Fall für vielleicht mehrere Jahre, und endlich nach und nach eine Festsetzung einer allgemeinen sinkenden Tendenz in langsamer Weise.

ASSURANCE MIXTE AVEC FACULTÉ DE RÉCLAMER SANS CONDITION À UN MOMENT DONNÉ LE REMBOURSEMENT DES PRIMES.

Par Ernst Hoppe.

Outre le devoir du père de famille de prévoir le sort des siens pour le cas où il leur est enlevé par la mort, il existe également pour lui celui d'être préparé pour les cas qui demandent des sacrifices financiers extraordinaires, tels que maladies, naissances d'enfants, perte de position, nécessités imprévues d'affaires, etc. Ce premier devoir est rempli par l'assurance sur la vie, le second par l'épargne. On ne peut dénier que la prévoyance du second genre ne soit celle qui est la plus pressante et par conséquent la plus urgente, puisque du reste la continuation du paiement des primes de l'assurance sur la vie en dépend. Dans la lutte entre l'assurance sur la vie et la caisse d'épargne, le public est arrivé à considérer ces deux institutions essentielles. Toutes les fois, cependant, que l'assurance-vie réussit à perfectionner son caractère d'épargne, elle a augmenté sa valeur. C'est pourquoi la croissance de l'assurance-vie durant les dernières décades est due pour une large part à l'introduction de l'assurance mixte, parce que, outre l'assurance en cas de mort, elle fournit pour la vieillesse des ressources qui n'avaient pu jusque là s'obtenir que par l'épargne. Il faut que l'assurance-vie fasse un autre progrès, en mettant les fruits de leur épargne à la disposition des assurés dans les cas sus-mentionnés de besoins subits d'argent. L'article sur l'assurance-vie, avec diminution des primes à payer, combinée à l'assurance mixte, montre la voie à suivre pour réaliser ce progrès.

Si une personne pas trop âgée contracte une de ces assurances mixtes, la valeur maxima des primes à verser n'atteindra pas celle de la somme assurée si le terme d'assurance est correctement choisi. C'est à dire que l'assuré ou ses héritiers recouvreront à la date du versement du capital assuré par la compagnie plus que le total des primes payées, parceque la compagnie pouvait couvrir le risque avec une partie seulement des intérêts composés grâce à l'effect de ces derniers, qui est considérable pour une longue période.

Il sera par conséquent nécessaire d'augmenter les effets des intérêts composés pendant les premières années de l'assurance, de manière à ce que cet intérêt composé couvre le risque et que les primes versées restent intactes après une période aussi brève que possible. On peut obtenir ce résultat en divisant l'assurance en deux périodes et en demandant le paiement d'une prime plus forte pendant la première période et moins forte pendant la seconde période que la prime moyenne normale.

Comme le père de famille, qui ne possède pas de capital, mais dépend sur ce qu'il gagne, est obligé maintenant de mettre une partie de son épargne en une assurance et l'autre à la banque, il serait tout

disposé à mettre toute son épargne dans une combinaison d'assurance-vie, telle qu'elle est décrite ci-dessus, s'il est possible de tenir à sa disposition le surplus des primes payées pendant la première période et, comme compensation pour ces plus forts paiements au commencement, après une durée assez brève, c'est à dire à l'expiration de la première période, le paiement total sous forme d'un placement ou rédemption.

De manière à rendre effectif pour l'assuré son droit de disposition de ses dépôts on recommande un allégement.

Si par exemple la compagnie d'assurance-vie veut devenir une banque d'épargne de la même manière qu'elle l'est de prévoyance en cas de mort prématurée, il faut traiter l'allégement de la police comme une affaire, et de même que le paiement après un décès devient un gain après déduction du décompte, de même il faut considérer dans les surcharges générales de primes les dépenses d'administration pour faire le prêt. La condition qu'il faut fixer mathématiquement pour une combinaison d'assurance telle que celle qui est proposée est que la réserve existante, c'est à dire la somme payée en plus du risque existant jusqu'ici, intérêts composés y compris, atteigne les primes nettes payées après l'expiration de la première période. L'addition aux primes doit être fixée de manière à ce que les dépenses d'achat paraissent couvertes.

Si par conséquent

m est le nombre d'années de la première période,

n » » » » » » seconde » ,

$h = m + n$ le terme d'assurance choisi,

${}_h\overset{m}{p}_a$ la prime de la première période pour l'âge d'entrée a,

${}_h\overset{\bar{n}}{p}_a$ » » » » seconde » » » » a,

${}_mR_a$ la rente temporaire commencant de suite,

D_a le nombre d'années de vie décompté,

${}_mP_a$ la prime unique pour une assurance temporaire en cas de décès,

${}_hA_a$ la prime unique pour une assurance mixte,

on peut alors exprimer la condition mentionnée ci-dessus en équation comme suit:

$$ {}_h\overset{m}{p}_a \cdot {}_mR_a \cdot D_a - {}_mP_a \cdot D_a = m \cdot {}_h\overset{m}{p}_a \cdot D_{a+m} $$

Il s'en suit:

$$ {}_h\overset{m}{p}_a = \frac{{}_mP_a \cdot D_a}{{}_mR_a \cdot D_a - m \cdot D_{a+m}} $$

Cette expression montre que la prime de la première période est indépendante de la durée de paiement des primes totales et du terme d'assurance et ne dépend que de l'âge à l'entrée et de la durée de la première période.

Comme la prime de la seconde période est naturellement d'autant plus faible que l'assurance dure plus longtemps, on ne considère dans ce qui suit que le cas d'une assurance mixte.

On se sert pour trouver ${}_h\overline{{}^{n}p}_a$ de l'équation suivante:

$$ {}_nA_{a+m} - {}_h\overline{{}^{n}p}_a \cdot {}_nR_{a+m} = m \cdot {}_h\overset{m}{p}_a .$$

Il s'en suit:

$${}_h\overline{{}^{n}p}_a = \frac{{}_nA_{a+m} - m \cdot {}_h\overset{m}{p}_a}{{}_nR_{a+m}}$$

Le calcul des primes par l'emploi de ces formules donne, en prenant comme base la table des 17 compagnies anglaises et le taux d'intérêt à $3\frac{1}{2}\%$,

pour $m = 6$

$${}_{24}\overline{{}^{18}p}_{20} = 0.01986 \ (0.03126)$$

$${}_h\overset{6}{p}_{20} = 0.05221 \quad {}_{30}\overline{{}^{24}p}_{20} = 0.01128 \ (0.02412)$$

$${}_{36}\overline{{}^{30}p}_{20} = 0.00649 \ (0.01976)$$

$${}_{24}\overline{{}^{18}p}_{30} = 0.01734 \ (0.03240)$$

$${}_h\overset{6}{p}_{30} = 0.05945 \quad {}_{30}\overline{{}^{24}p}_{30} = 0.00963 \ (0.02563)$$

$${}_{36}\overline{{}^{30}p}_{30} = 0.00558 \ (0.02175)$$

$${}_{18}\overline{{}^{12}p}_{40} = 0.02814 \ (0.04676)$$

$${}_h\overset{6}{p}_{40} = 0.07112 \quad {}_{24}\overline{{}^{18}p}_{40} = 0.01399 \ (0.03517)$$

$${}_{30}\overline{{}^{24}p}_{40} = 0.00785 \ (0.02932)$$

$${}_h\overset{6}{p}_{50} = 0.10133 \quad {}_{18}\overline{{}^{12}p}_{50} = 0.01151 \ (0.05257)$$

(La valeur entre parenthèses désigne la prime annuelle correspondante de l'assurance mixte ordinaire.)

En indiquant la différence qui existe pendant les années de la première période entre la réserve et cette part de la commission d'achat de 2 pour cent de l'argent d'assurance qui n'a pas été dépensé, comme une réserve disponible et en traçant un parallèle entre le surplus des primes qui a été payé et les primes d'une assurance mixte ordinaire, on se rend compte qu'on peut prêter ce surplus de prime à l'assuré presque dans tous les cas après un an et dans tous les cas après deux ans.

De plus en recherchant le Homogain, qui est obtenu dans les années de la seconde période en retour des primes nettes, on trouvera qu'il est très faible au commencement, mais augmente suivant le chiffre absolu et en outre suivant le pour cent. Le Homogain est par exemple pour $a = 30$, $h = 30$ à l'expiration de 7 années de 1.84 pour cent et à l'expiration de 15 ans de 16.33 pour cent de la réserve.

Si on désire de plus voir, si et quand la réserve dans la seconde période atteint la somme des primes brutes versées, il est nécessaire de commencer par fixer les additions de primes.

Les additions de primes dans la première période devraient couvrir

1° la quotité payée de la commission d'achat $= \frac{0.02}{{}_m R_a}$,

2° les dépenses d'administration que nous fixerons à 1.5 par mille de l'argent d'assurance,

3° la commission de recouvrement, qui en considération de l'élévation de la prime peut être considérée suffisante à 2 pour cent de la prime.

Les additions doivent se calculer suivant les formules:

$$Z = \frac{0.02}{{}_m R_a} + 0.0015,\ 2 : 98 = J : ({}_h^m p_a + Z),\ J = \frac{{}_h^m p_a + Z}{49}$$

pour ${}_h^6 p_{20}$ sur $0.00636 = 12.19$ pour cent de la prime nette ou en nombre rond 12.5 pour cent,

pour ${}_h^6 p_{30}$ sur $0.00652 = 10.97$ pour cent de la prime nette ou en nombre rond 11.5 pour cent,

pour ${}_h^6 p_{40}$ sur $0.00678 = 9.53$ pour cent de la prime nette ou en nombre rond 10 pour cent,

pour ${}_h^6 p_{50}$ sur $0.00746 = 7.36$ pour cent de la prime nette ou en nombre rond 8 pour cent,

et les primes brutes de la première période sont sur la base des additions

$${}_h^6 p_{20} = 0.05873,\ {}_h^6 p_{30} = 0.06629,\ {}_h^6 p_{40} = 0.07824,\ {}_h^6 p_{50} = 0.10943$$

Si pour les primes de la seconde période on prend des additions de 15 à 27½ pour cent, le calcul montre que la réserve après l'expiration de la moitié du terme d'assurance, au plus tôt après 12 ans, approche et dépasse la somme des primes brutes payées.

Avec l'aide de la formule indiquée ci-dessus pour les additions de primes dans la première période, nous pouvons maintenant aborder le problème rejeté d'abord de tenir à la disposition de l'assuré les primes brutes déjà après l'expiration de la première période. Nous avons

$${}_h^m p_a + Z + J = \frac{50\,({}_h^m p_a + Z)}{49}$$

$${}_h^m p_a \cdot {}_m R_a \cdot D_a - {}_m P_a \cdot D_a = m \frac{50\,({}_h^m p_a + Z)}{49} \cdot D_{a+m}$$

$${}_h^m p_a = \frac{49 \cdot {}_m P_a \cdot D_a + 50 Z \cdot m \cdot D_{a+m}}{49\,{}_m R_a \cdot D_a - 50 \cdot m \cdot D_{a+m}}$$

On peut calculer d'après cela, par exemple,

			pour $a = 20$, $m =$	6
les primes nettes de la première période avec . . .				0.09732
» » brutes » » » » . . .				0.10460
			pour $a = 30$, $m =$	6
» » nettes » » » » . . .				0.10384
» » brutes » » » » . . .				0.11127
			pour $a = 30$, $m =$	10
» » nettes » » » » . . .				0.05834
» » brutes » » » » . . .				0.06353

De manière à ce que les primes de la seconde période restent positives, il faut choisir cette période comparativement courte, au maximum de 14 ans dans le premier et troisième exemple, et de 12 ans dans le second exemple.

Si cette seconde période n'est pas prise beaucoup plus courte, il sera bon d'en raccourcir la durée du paiement des primes (n').

Ainsi la prime de la seconde période est dans l'exemple

1°	pour $n = 12$, $n' =$ 6	0.00890
	» $n = 10$, $n' = 10$	0.01097
2°	» $n = 10$, $n' =$ 6	0.00990
3°	» $n = 12$, $n' =$ 5	0.01000
	» $n = 10$, $n' = 10$	0.01061

Ces exemples montrent qu'il faut donner à m une forte valeur et à h une valeur proportionnellement petite, si l'on se propose de rembourser les primes brutes après l'expiration de la première période.

Quel que soit le mode de remboursement choisi suivant ces circonstances (des primes nettes ou des primes brutes), la combinaison proposée offre de gros bénéfices à l'assuré ainsi qu'à la compagnie. Celle-ci, en perfectionnant par cette combinaison le caractère d'épargne de l'assurance-vie et en garantissant l'assuré contre des besoins momentanés d'argent, peut obtenir la clientèle de ceux qui ne voulaient pas jusqu'ici entendre parler d'assurance-vie.

L'assuré devient bien plus qu'auparavant le créancier de la compagnie par suite des primes élevées payées au début. La compagnie devient l'administratice d'une grosse somme d'épargne, elle obtient en conséquence un gain plus fort sur les intérêts et trouve dans ces fonds d'épargne un fort support contre une éventualité défavorable dans le taux de mortalité qu'occasionnerait quelque événement extraordinaire.

ENDOWMENT ASSURANCE WITH PROVISION FOR THE UNCONDITIONAL REPAYMENT OF PREMIUMS AT A GIVEN DATE.

By Ernst Hoppe.

It is not only the duty of a father to provide for the maintenance of his family in case he should be taken away by death, but he must also be fully prepared, in case sickness, birth of children, temporary inability to make a living, business requirements and the like demand of him extraordinary financial sacrifices. The first mentioned provision is realized by a life insurance, the second by saving money.

It cannot be denied that the provision of the second kind is the more real one and therefore more urgent, and that upon this the maintenance of the life insurance is dependent. In the contest between life insurance and the savings bank the public has therefore decided to consider both indispensable. Every time, however, when life insurance has succeeded in perfecting its savings' character, it has experienced increased encouragement. Therefore the growth of life insurance during recent decades is due in large degree to the introduction of endowment assurance. This, through the medium of an insurance in case of death, provides for the old age of the insured, a result only obtained hitherto by saving.

A further advance in life insurance must be made by making the fruits of saving accessible to the saving people in the above mentioned cases of sudden need of money. The assurance in case of death with shortened payment of premiums and the endowment assurance show the way thereto.

If a person of an age not too advanced contracts for one of the life insurances in question, the maximum amount of the premiums to be paid will not reach the insured sum, if the term of insurance is selected correctly. This signifies that the insured or his relatives respectively receive at the date of the paying off of the capital the disposition of the premiums paid in, while on account of the considerable effect produced by the compound interest in a long period, the company could cover the risk only with a part of the compound interest.

Therefore, it will be necessary to increase the effect of the compound interest in the first years of insurance, so that this will cover the premium of risk and also that the paid-in premiums shall remain intact after as short a time as possible.

This result can be obtained by dividing the insurance into two periods and by requiring a higher premium during the first period and a smaller one during the second period as a normal average premium.

As the father of a family—as stated above—who does not possess a capital but depends only on his trade, is obliged now-a-days to use a part of his savings for life insurance and to put another portion in a bank, he would easily consent to invest all his savings in a life insurance

combination, as described above, if it were possible to hold at his disposition the over premium *ab ovo* requested during the first period and as compensation for the larger original payments in a short time, i.e., after expiration of the first period, the total payments in form of loan or redemption.

In order to make the right of disposition of his deposits for the insured an actual one, a relief is recommended. If for instance the life insurance will be a savings bank in the same way as it is a provision in the event of an early death, then the relieving element of the policy should be made no more a matter of business, than for instance to deduct a gain for discounting in paying a death claim to-day. The expenses of supervising and the granting of the loan should be considered in the general premium loadings.

The condition to be fixed mathematically for such insurance combination as proposed is, that the existing reserve, i.e., the amount paid in excess over the risk hitherto existing including compound interest reaches the paid net premium after expiration of the first period.

The premium additions are to be fixed so that the expenses of purchase appear covered.

It be therefore:

m the number of years of the first period,
n the number of years of the second period,
$h = m + n$ the insurance distance agreed upon,

${}^{m}_{h}p_a$ the premium of the first period for the beginning age a,

${}^{n}_{h}p_a$ the premium of the second period for the beginning age a,

${}_{m}R_a$ the temporary annuity beginning at once,

D_a the discounted number of the living,

${}_{m}P_a$ the one premium for temporary insurance in case of death,

${}_{h}P_a$ the one premium for an insurance combination.

Then the condition mentioned above can be expressed as an equation as follows:

$$ {}^{m}_{h}p_a \cdot {}_{m}R_a \cdot D_a - {}_{m}P_a \cdot D_a = m \cdot {}^{m}_{h}p_a \cdot D_{a+m} $$

Therefrom follows:

$$ {}^{m}_{h}p_a = \frac{{}_{m}P_a \cdot D_a}{{}_{m}R_a \cdot D_a - m \cdot D_{a+m}} $$

This expression shows that the premium of the first period is independent from the duration of paying the total premiums and from the term of insurance and is only dependent upon the age at the beginning and upon the duration of the first period.

As the premium of the second period is naturally smaller the longer the insurance lasts, so only the case of a mixed capital insurance (insurance in case of death or life) is considered in the following:

In order to find ${}^{n}_{h}p_a$ the following equation is used

$$ {}_{n}A_{a+m} - {}^{n}_{h}p_a \cdot {}_{n}R_{a+m} = m \cdot {}^{m}_{h}p_a $$

From this follows:

$$ {}^{n}_{h}p_a = \frac{{}^{h}A_{a+m} - m \cdot {}^{m}_{h}p_a}{{}^{n}R_{a+m}} $$

By taking as basis the table of the 17 English companies and a rate of interest of $3\frac{1}{2}$ per cent the calculation of the premiums by the use of these formulae gives:

for $m = 6$

$$ {}^{\overline{18}}_{24}p_{20} = 0.01986 \ (0.03126) $$

$$ {}^{6}_{h}p_{20} = 0.05221 \quad {}^{\overline{24}}_{30}p_{20} = 0.01128 \ (0.02412) $$

$$ {}^{\overline{30}}_{36}p_{20} = 0.00649 \ (0.01976) $$

$$ {}^{\overline{18}}_{24}p_{30} = 0.01734 \ (0.03240) $$

$$ {}^{6}_{h}p_{30} = 0.05945 \quad {}^{\overline{24}}_{30}p_{30} = 0.00963 \ (0.02563) $$

$$ {}^{\overline{30}}_{36}p_{30} = 0.00558 \ (0.02175) $$

$$ {}^{\overline{12}}_{18}p_{40} = 0.02814 \ (0.04676) $$

$$ {}^{6}_{h}p_{40} = 0.07112 \quad {}^{\overline{18}}_{24}p_{40} = 0.01399 \ (0.03517) $$

$$ {}^{\overline{24}}_{30}p_{40} = 0.00785 \ (0.02932) $$

$$ {}^{6}_{h}p_{50} = 0.10133 \quad {}^{\overline{12}}_{18}p_{50} = 0.01151 \ (0.05257) $$

The value in brackets means the corresponding yearly premiums of the ordinary endowment assurance.

Indicating the difference which in the years of the first period exists between the reserve and that part of the purchase commission of 2 per cent of the insurance-money, which has not been paid, as available reserve and drawing a parallel to the surplus of premiums, which has been paid, in comparison with the premium for an ordinary endowment assurance, one can see that this surplus of premiums can be granted to the insured almost in all cases after one year, always after 2 years as loan or redemption.

Further by investigating the "Storno" gain, which is obtained in the years of the second period in returning of the net premiums, one will find that same is very small at the beginning, but increases not only according to the absolute amount but also by per cent. The "Storno" gain is for instance: for $a = 30$, $h = 30$ at the expiration of 7 years 1.84 per cent, and at the expiration of 15 years 16.33 per cent of the reserve.

If we wish to see further, whether and when the reserve in the second period reached the sum of the gross premiums paid in, it is first of all necessary to fix the premium loadings.

The premium loading in the first period should cover:

1. The paid-off quota of the purchase commission $= \frac{0.02}{{}_m R_a}$,
2. The expenses of supervision, which we will fix at 1.5 per mille of the insurance money,
3. The commission for collection, which in consideration of the higher premium will be sufficiently fixed at 2 per cent of the latter.

The additions are to be calculated according to the formulae:

$$Z = \frac{0.02}{{}_m R_a} + 0.0015, \quad 2 : 98 = J : ({}_h^m p_a + Z), \quad J = \frac{{}_h^m p_a + Z}{49}$$

for ${}_h^6 p_{20}$ on $0.00636 = 12.19$ per cent of the net premiums or round 12.5 per cent,

for ${}_h^6 p_{30}$ on $0.00652 = 10.97$ per cent of the net premiums or round 11.5 per cent,

for ${}_h^6 p_{40}$ on $0.00678 = 9.53$ per cent of the net premiums or round 10 per cent,

for ${}_h^6 p_{50}$ on $0.00746 = 7.36$ per cent of the net premiums or round 8 per cent,

and the gross premiums of the first period are on the basis of the full loadings:

$${}_h^6 p_{20} = 0.05873, \quad {}_h^6 p_{30} = 0.06629, \quad {}_h^6 p_{40} = 0.07824, \quad {}_h^6 p_{50} = 0.10943$$

If for the premiums of the second period loadings of 15 to 27½ per cent are taken, the calculation shows that the reserve after expiration of the half insurance distance, earliest after twelve years, approaches the sum of the gross premiums paid in, respectively exceeds it.

With the aid of the formula above stated for the premium loadings in the first period we now are able to turn to the problem at first set aside to hold at the disposal of the insured the gross premiums, after expiration of the first period. We have:

$${}_h^m p_a + Z + J = \frac{50\,({}_h^m p_a + Z)}{49}$$

$${}_h^m p_a \cdot {}_m R_a \cdot D_a - {}_m P_a \cdot D_a = m \frac{50\,({}_h^m p_a + Z)}{49} \cdot D_{a+m}$$

$${}_h^m p_a = \frac{49\,{}_m P_a \cdot D_a + 50 Z \cdot m \cdot D_{a+m}}{49\,{}_m R_a \cdot D_a - 50 \cdot m \cdot D_{a+m}}$$

From this can be calculated for instance

	for $a = 20$, $m = 6$
the net premium of the first period with	0.09732
" gross " " " " " " "	0.10460
	for $a = 30$, $m = 6$
" net " " " " " " "	0.10384
" gross " " " " " " "	0.11127
	for $a = 30$, $m = 10$
" net " " " " " " "	0.05834
" gross " " " " " " "	0.06353

In order to keep to the good the premium of the second period, this latter must be chosen proportionally short, in the first and third example a maximum of fourteen years, in the second example a maximum of twelve.

If the second period is not taken considerably shorter it will be good to shorten the duration of payment of premiums (n') of the second period.

So the premium of the second period is in example

1)	for $n = 12$, $n' = 6$	0.00890
	" $n = 10$, $n' = 10$	0.01097
2)	" $n = 10$, $n' = 6$	0.00990
3)	" $n = 12$, $n' = 5$	0.01000
	" $n = 10$, $n' = 10$	0.01061

These examples show that m must be fixed large and h proportionally small, if the paying back of the gross premiums after expiration of the first period is intended.

Whatever method of these two (paying back of the net premiums, or paying back of the gross premiums) is chosen under these circumstances, the proposed combination offers great benefit to the insured as well as to the company. The company by such combination perfecting the saving character of the life insurance and thus setting the insured at ease regarding a case of momentary need of money, will secure those who so far did not want to have anything to do with life insurance.

The insured becomes creditor of the company in a much higher degree than before on account of the high premium at the beginning. The company takes up the supervision of considerable savings funds, obtains therefrom a larger gain on interests and finds in these savings funds a strong support against the eventuality of an unfavorable rate of mortality due to extraordinary events.

GEMISCHTE CAPITALVERSICHERUNG MIT AN EINEM BESTIMMTEN TERMINE ERWACHSENDEM UNBEDINGTEN ANSPRUCH AUF PRÄMIEN-RÜCKGEWÄHR.

Von Ernst Hoppe.

Kurzer Inhalt des in der Oesterreichischen Versicherungs-Zeitung (1902) erschienenen Aufsatzes.

Dem Familienvater obliegt nicht bloss die Vorsorge, seine Familie für den Fall sicherzustellen, als er ihr entrissen werden sollte, sondern er muss auch gerüstet sein, falls Krankheiten, Kindergeburten, vorübergehende Erwerbslosigkeit, geschäftliche Erfordernisse etc. aussergewöhnliche finanzielle Opfer erheischen.

Die erstgenannte Vorsorge wird durch die Lebensversicherung verwirklicht, die zweite durch das Sparen.

Es kann nicht geleugnet werden, dass die Vorsorge der zweiten Art die actuellere und deshalb dringlichere ist, ja dass davon, dass diese Vorsorge getroffen wurde, die Aufrechterhaltung der Lebensversicherung meist abhängt.

In dem Wettkampfe zwischen Lebensversicherung und Sparcasse hat sich das Publicum daher dafür entschieden, beide für unentbehrlich zu halten. Jedesmal aber, wenn es der Lebensversicherung gelang, ihren Sparcharakter zu vervollkommnen, hat sie einen gesteigerten Zuspruch erfahren.

So war der grossartige Aufschwung, welchen die Lebensversicherung in den letzten Jahrzehnten genommen hat, nicht zum geringsten Theile durch die Einführung der gemischten Versicherung bedingt, weil diese die Versorgung des eigenen Alters, die bisher nur durch Sparen erreicht werden konnte, im Wege einer Todesfallversicherung ermöglichte.

Ein weiterer Fortschritt der Lebensversicherung muss darin bestehen, dem Sparer auch in den Eingangs erwähnten Fällen plötzlichen Geldbedarfes die Früchte seines Sparens zugänglich zu machen.

Die Betrachtung der Todesfallversicherung mit abgekürzter Prämienzahlung und der gemischten Versicherung zeigt den Weg hiezu.

Schliesst eine Person in nicht allzu vorgeschrittenem Alter eine der genannten Lebensversicherungen ab, so wird bei richtiger Wahl der Versicherungsdistanz der mögliche Höchstbetrag der einzuzahlenden Prämien die Versicherungssumme nicht erreichen, d. h. der Versicherte, beziehungsweise seine Angehörigen, erhalten am Auszahlungstermine des Capitals die Verfügung über die eingezahlten Prämien zurück, während die Gesellschaft kraft der in einem längeren Zeitraume bedeutenden Wirkung der Zinseszinsen mit nur einem Theile derselben das Risico decken konnte.

Es wird sich also darum handeln, schon in den ersten Versicherungsjahren die Wirkung der Zinseszinsen zu steigern, damit

diese die Risicoprämie decken und die eingezahlten Prämien in möglichst kurzer Zeit intact vorhanden sind.

Dies kann dadurch erreicht werden, dass die Versicherung in zwei Perioden eingetheilt und während der ersten Periode eine höhere, während der zweiten Periode eine entsprechend niedrigere als die normale Durchschnittsprämie gefordert wird.

Da, wie eingangs erwähnt, der Familienvater, welcher über kein grösseres Capital verfügt, sondern nur von seinem Erwerbe lebt, heute gezwungen ist, einen Theil seiner Ersparnisse für die Lebensversicherung und einen Theil als Sparanlage zu verwenden, so wird sich derselbe leicht entschliessen, der oben angeregten Lebensversicherungs-Combination nunmehr seine ganzen Ersparnisse zuzuführen, wenn es möglich ist, ihm die während der ersten Periode geforderte Mehrprämie *ab ovo* und als Entschädigung für die anfängliche Mehrleistung in Kürze, d. h. nach Ablauf der ersten Periode, die gesammten Einzahlungen in Form von Belehnung oder Rückkauf zur Verfügung zu halten.

Um das Verfügungsrecht des Versicherten über seine Einlagen zu einem thatsächlichen zu machen, wird sich allerdings noch eine Erleichterung empfehlen.

Wenn nämlich die Lebensversicherung in demselben Maasse eine Sparanlage werden will, als sie eine Versorgung für den Fall des frühzeitigen Todes ist, dann sollte der Fall, dass die Belehnungsfähigkeit der Police in Anspruch genommen wird, ebenso wenig zur Quelle eines besonderen Geschäftes gemacht werden, als etwa bei der Zahlung nach einem Todesfalle heute mehr ein Discontgewinn in Abzug gebracht wird, und die Verwaltungsspesen der Darlehensgewährung sollten in den allgemeinen Prämienzuschlägen vorgesehen werden.

Die mathematisch zu formulirende Bedingung für die angeregte Lebensversicherungs-Combination ist, dass die vorhandene Reserve, d. h. der über das bisherige Risico hinaus gezahlte Betrag sammt Zinseszinsen, nach Ablauf der ersten Periode die eingezahlten Nettoprämien erreicht.

Die Prämienzuschläge sind dabei so zu stellen, dass die Anwerbespesen zu derselben Zeit getilgt erscheinen.

Es sei nunmehr:

m die Anzahl der Jahre der ersten Periode,

n „ „ „ „ „ zweiten „ ,

$h = m + n$ die vereinbarte Versicherungsdistanz,

$\overset{m}{{}_h\mathfrak{P}_a}$ die Prämie der ersten Periode für das Eintrittsalter a,

$\overset{\overline{n}}{{}_h\mathfrak{P}_a}$ die Prämie der zweiten Periode für das Eintrittsalter a,

${}_mR_a$ die sofort beginnende temporäre Leibrente,

D_a die discontirte Zahl der Lebenden,

${}_mP_a$ die Einmalprämie für eine temporäre Todesfallversicherung,

${}_h\mathfrak{P}_a$ die Einmalprämie für eine gemischte Versicherung.

Die oben angeführte Bedingung lässt sich alsdann unter folgender Gleichung darstellen:

$$\overset{m}{{}_h\mathfrak{P}_a} \cdot {}_mR_a \cdot D_a - {}_mP_a \cdot D_a = m \cdot \overset{m}{{}_h\mathfrak{P}_a} \cdot D_{a+m}$$

Hieraus folgt:

$$\overset{m}{{}_h\mathfrak{P}_a} = \frac{{}_mP_a \cdot D_a}{{}_mR_a \cdot D_a - m \cdot D_{a+m}}$$

Dieser Ausdruck zeigt, dass die Prämie der ersten Periode unabhängig ist von der Gesammtprämienzahlungsdauer und von der Versicherungsdistanz und nur abhängig ist von dem Eintrittsalter und von der Länge der ersten Periode.

Da die Prämie der zweiten Periode naturgemäss desto kleiner ausfällt, je länger die Versicherung dauern soll, so wird im Nachfolgenden nur der Fall einer gemischten Capitalversicherung (Ab- und Erlebensversicherung) ins Auge gefasst.

Zur Berechnung von $\overset{\bar{n}}{{}_h\mathfrak{P}_a}$ dient die Gleichung:

$${}_n\mathfrak{V}_{a+m} - \overset{\bar{n}}{{}_h\mathfrak{P}_a} \cdot {}_nR_{a+m} = m \cdot \overset{m}{{}_h\mathfrak{P}_a}$$

Hieraus folgt:

$$\overset{\bar{n}}{{}_h\mathfrak{P}_a} = \frac{{}_n\mathfrak{V}_{a+m} - m \cdot \overset{m}{{}_h\mathfrak{P}_a}}{{}_nR_{a+m}}$$

Die Berechnung der Prämien auf Grund dieser Formeln ergibt bei Zugrundelegung der Tafel der 17 englischen Gesellschaften und eines Zinsfusses von $3\frac{1}{2}\%$

für $m = 6$

$$\begin{aligned}
&&&\overline{{}_{24}\mathfrak{P}_{20}} = 0.01986\ (0.03126)\\
\overset{6}{{}_h\mathfrak{P}_{20}} = 0.05221\ &&&\overline{{}_{30}\mathfrak{P}_{20}} = 0.01128\ (0.02412)\\
&&&\overline{{}_{36}\mathfrak{P}_{20}} = 0.00649\ (0.01976)\\
&&&\overline{{}_{24}\mathfrak{P}_{30}} = 0.01734\ (0.03240)\\
\overset{6}{{}_h\mathfrak{P}_{30}} = 0.05945\ &&&\overline{{}_{30}\mathfrak{P}_{30}} = 0.00963\ (0.02563)\\
&&&\overline{{}_{36}\mathfrak{P}_{30}} = 0.00558\ (0.02175)\\
&&&\overline{{}_{18}\mathfrak{P}_{40}} = 0.02814\ (0.04676)\\
\overset{6}{{}_h\mathfrak{P}_{40}} = 0.07112\ &&&\overline{{}_{24}\mathfrak{P}_{40}} = 0.01399\ (0.03517)\\
&&&\overline{{}_{30}\mathfrak{P}_{40}} = 0.00785\ (0.02932)\\
\overset{6}{{}_h\mathfrak{P}_{50}} = 0.10133\ &&&\overline{{}_{18}\mathfrak{P}_{50}} = 0.01151\ (0.05257)
\end{aligned}$$

(Der in Klammern gesetzte Werth bedeutet die entsprechende Jahresprämie der gewöhnlichen gemischten Versicherung.)

Bezeichnet man die Differenz, welche in den Jahren der ersten Periode zwischen der Reserve und dem noch ungetilgten Teile der Anwerbeprovision von 2% der Versicherungssumme besteht, als ver-

fügbare Reserve und vergleicht man diese mit dem Prämienplus, welches gegenüber der Prämie für eine gewöhnliche gemischte Versicherung gezahlt worden ist, so sieht man, dass dieses Prämienplus fast in allen Fällen schon nach einem Jahre, immer aber nach zwei Jahren dem Versicherten als Darlehen oder Rückkauf gewährt werden kann.

Untersucht man ferner den Stornogewinn, welcher sich in den Jahren der zweiten Periode bei Rückgewähr der Nettoprämien ergibt, so findet man, dass derselbe zwar anfangs sehr gering ist, jedoch nicht bloss dem absoluten Betrage nach, sondern auch percentuell steigt. Der Stornogewinn beträgt z. B. für $a = 30$, $h = 30$ nach Ablauf von sieben Jahren 1.84% und nach Ablauf von 15 Jahren 16.33% der Reserve.

Wenn wir nun weiters sehen wollen, ob und wann die Reserve in der zweiten Periode die Summe der eingezahlten Bruttoprämien erreicht, ist es vor Allem nöthig, über die Höhe der Prämienzuschläge eine Entscheidung zu treffen.

Der Prämienzuschlag der ersten Periode soll decken:

1. Die Tilgungsquote der Anwerbeprovision $= \frac{0.02}{{}^{m}R_a}$,
2. Die Verwaltungskosten, welche wir mit 1.5 Permille der Versicherungssumme bestimmen wollen,
3. Die Incassoprovision, für welche mit Rücksicht auf die erhöhte Prämie 2 Percent dieser genügen.

Die Zuschläge berechnen sich nach den Formeln:

$$Z = \frac{0.02}{{}^{m}R_a} + 0.0015,\quad 2 : 98 = J : ({}^{m}_{h}\mathfrak{p}_a + Z),\quad J = \frac{{}^{m}_{h}\mathfrak{p}_a + Z}{49}$$

für ${}^{6}_{h}\mathfrak{p}_{20}$ auf $0.00636 = 12.19$ Percent der Nettoprämien oder rund 12.5 Percent,

für ${}^{6}_{h}\mathfrak{p}_{30}$ auf $0.00652 = 10.97$ Percent der Nettoprämien oder rund 11.5 Percent,

für ${}^{6}_{h}\mathfrak{p}_{40}$ auf $0.00678 = 9.53$ Percent der Nettoprämien oder rund 10 Percent,

für ${}^{6}_{h}\mathfrak{p}_{50}$ auf $0.00746 = 7.36$ Percent der Nettoprämien oder rund 8 Percent,

und die Bruttoprämien der ersten Periode betragen auf Basis der aufgerundeten Zuschläge

$${}^{6}_{h}\mathfrak{p}_{20} = 0.05873,\quad {}^{6}_{h}\mathfrak{p}_{30} = 0.06629,\quad {}^{6}_{h}\mathfrak{p}_{40} = 0.07824,\quad {}^{6}_{h}\mathfrak{p}_{50} = 0.10943$$

Wählt man für die Prämien der zweiten Periode Zuschläge von 15 bis 27.5%, so zeigt die Berechnung, dass die Reserve nach Ablauf der halben Versicherungsdistanz, frühestens aber nach 12 Jahren, sich der Summe der eingezahlten Bruttoprämien nähert, bezw. dieselbe übersteigt.

Mit Hilfe der oben gegebenen Formel für die Prämienzuschläge der ersten Periode können wir uns nunmehr dem anfänglich zurückgestellten Probleme zuwenden, schon nach Ablauf der ersten Periode dem Versicherten die Bruttoprämien zur Verfügung zu halten.

Wir haben:

$$\overset{m}{h}P_a + Z + J = \frac{50\,(\overset{m}{h}P_a + Z)}{49}$$

$$\overset{m}{h}P_a \cdot {}_mR_a \cdot D_a - {}_mP_a \cdot D_a = m\,\frac{50\,(\overset{m}{h}P_a + Z)}{49} \cdot D_{a+m}$$

$$\overset{m}{a}P_a = \frac{49\,{}_mP_a \cdot D_a + 50Z \cdot m \cdot D_{a+m}}{49\,{}_mR_a \cdot D_a - 50 \cdot m \cdot D_{a+m}}$$

Hieraus berechnet sich z. B.

															für $a = 20$, $m = 6$
die Nettoprämie	der	I.	Periode	mit	.	.	.	.	.	.	.	.	.	.	0.09732
„ Bruttoprämie	„	„	„	„	.	.	.	.	.	.	.	.	.	.	0.10460
															für $a = 30$, $m = 6$
„ Nettoprämie	„	„	„	„	.	.	.	.	.	.	.	.	.	.	0.10384
„ Bruttoprämie	„	„	„	„	.	.	.	.	.	.	.	.	.	.	0.11127
															für $a = 30$, $m = 10$
„ Nettoprämie	„	„	„	„	.	.	.	.	.	.	.	.	.	.	0.05834
„ Bruttoprämie	„	„	„	„	.	.	.	.	.	.	.	.	.	.	0.06353

Um die Prämie der zweiten Periode positiv zu halten, muss die zweite Periode verhältnismässig kurz gewählt werden, bei dem ersten und dritten Beispiele höchstens 14, bei dem zweiten höchstens 12 Jahre.

Wird die zweite Periode nicht bedeutend kürzer angenommen, so empfiehlt es sich, die Prämienzahlungsdauer n' der zweiten Periode abzukürzen.

So beträgt die Prämie der zweiten Periode

bei Beispiel 1)	für	$n = 12$, $n' = 6$	0.00890
	„	$n = 10$, $n' = 10$	0.01097
„ „ 2)	„	$n = 10$, $n' = 6$	0.00990
„ „ 3)	„	$n = 12$, $n' = 5$	0.01000
	„	$n = 10$, $n' = 10$	0.01061

Diese Beispiele lehren, dass man m gross und h verhältnissmässig klein bestimmen muss, wenn die Rückgewähr der Bruttoprämien nach Ablauf der ersten Periode in Aussicht genommen wird. Welche der beiden Modalitäten (Rückgewähr der Nettoprämien oder Rückgewähr der Bruttoprämien) unter diesen Umständen auch gewählt wird, so bietet die vorgeschlagene Combination sowohl dem Versicherten als dem Versicherer grosse Vorteile.

Indem der Lebensversicherer durch diese Combination den Sparcharakter der Lebensversicherung vervollkommnet, und den Versicherten für den Fall eines eintretenden Geldbedarfes beruhigt, wird er jene gewinnen, welche bisher von der Lebensversicherung überhaupt nichts wissen wollten.

Der Versicherte wird infolge der anfänglichen hohen Prämien in viel höherem Grade als bisher Gläubiger der Gesellschaft. Diese nimmt in kurzer Zeit einen bedeutenden Sparfonds in ihre Verwaltung, erzielt aus demselben einen grösseren Zinsengewinn, und findet in dem Sparfonds einen starken Rückhalt gegen einen etwa durch aussergewöhnliche Ereignisse verschuldeten ungünstigen Sterblichkeitsverlauf.

SUR L'EMPLOI SIMULTANÉ DE LOIS DE SURVIE DISTINCTES.

PAR ALBERT QUIQUET,

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1. OBJET DU PRÉSENT MÉMOIRE.

La Commission d'organisation du quatrième Congrès international d'Actuaires a proposé, comme l'un des sujets pouvant être traités sous forme de mémoires, la question des Probabilités viagères. Cette partie du programme m'a paru convenir à quelques résultats nouveaux des études que j'ai publiées, il y a plusieurs années, sur les lois de Gompertz et de Makeham, et sur leur extension. Peut-être ai-je mal compris les intentions de la Commission, et peut-être entend-elle par les mots «probabilités viagères» un autre ordre d'idées, celui que M. Blashke, par exemple, a brièvement indiqué au troisième Congrès: l'ampleur de ces termes sera mon excuse si je les ai faussement interprétés, et si j'ai pensé qu'ils n'avaient rien de limitatif.

La nouvelle extension que j'ai obtenue de mes précédentes formules dérive, comme celles-ci, des admirables travaux de Gompertz et de Makeham, qui font depuis si longtemps autorité dans la science actuarielle. La simplicité de cette extension me laisse cependant une crainte: c'est qu'à mon insu elle n'ait déjà été produite ailleurs. Je n'aurais plus alors qu'à prier ceux de mes collègues qui en auraient connaissance de vouloir bien m'en faire part.

2. PREMIER PROBLÈME.

En 1893, dans la Thèse que j'ai soutenue devant l'Institut des Actuaires français pour obtenir le titre de membre agrégé,* mon principal objet a été de développer deux notes que j'avais présentées à l'Académie des Sciences de Paris,† et où je montrais comment pouvaient se généraliser les lois de Gompertz et de Makeham. Je me proposais surtout le problème fondamental suivant:

« Soient a, b, ..., k, les âges de N individus, qui suivent tous la même loi de survie, et soit $l(x)$ le nombre de survivants que donne cette loi à l'âge x pour un nombre déterminé de naissances. Soient, d'autre part, n fonctions de a, b, ..., k, que j'appelle α, β, ..., θ, indépendantes entre elles et indépendantes de t. Cherchons quelle doit être la forme de $l(x)$ pour que l'on ait, quel que soit t,

$$\frac{l(a+t)}{l(a)} \cdot \frac{l(b+t)}{l(b)} \cdot \ldots\ldots \frac{l(k+t)}{l(k)} = G(\alpha, \beta, \ldots, \theta, t).»$$

On comprend l'intérêt pratique de ce problème, si n est inférieur à N.

* Cette thèse a paru en deux brochures, la première intitulée « *Représentation algébrique des Tables de Survie; généralisation des lois de Gompertz, de Makeham, etc.*»; — la seconde intitulée « *Aperçu historique sur les formules d'interpolation des Tables de Survie et de Mortalité.*»

† Voir *Comptes Rendus hebdomadaires des Séances de l'Académie des Sciences*, 22 mai 1888 et 25 novembre 1889.

En effet, le premier membre de cette équation est la probabilité pour le groupe des N individus d'exister encore tout entier au temps t; et, en vertu du second membre, cette probabilité peut s'exprimer à l'aide de n variables seulement, au lieu des N âges.

Comme on sait passer aisément de cette probabilité aux annuités viagères sur N individus, et de là à diverses opérations d'assurances sur plusieurs têtes, les calculs se simplifient de suite dans une notable mesure. Pour me borner à un exemple classique, je rappellerai la réduction de têtes d'âges différents à des têtes *d'âge égal*, lorsque leur mortalité s'exprime par une formule de Makeham: la fonction G se réduit dans ce cas à $G(\alpha, t)$, α étant cet *âge égal*.

3. Rappel de divers Résultats.

Le premier chapitre de ma Thèse a établi que la solution était possible du problème que je viens d'énoncer. Cette solution dépend essentiellement d'une équation différentielle linéaire et d'ordre n, à coefficients constants, sans second membre:

$$A_0 y + A_1 y' + \cdots\cdots + A_n y^{(n)} = 0.$$

La découverte des fonctions y est une question bien connue. Parmi ses conséquences, certaines ramènent à des formules déjà publiées pour $l(x)$. Ainsi j'ai établi que, n étant toujours le nombre des fonctions α, β, ..., θ, de a, b, ... k:

1° Si $n = 0$, on retrouve pour $l(x)$ une fonction indiquée par Dormoy,

$$l(x) = e^{A+Bx};$$

2° Si $n = 1$, on retrouve pour $l(x)$, entre autres fonctions, une seconde fonction de Dormoy, la loi de Gompertz, et la loi de Makeham;

3° Si $n = 2$, on retrouve le *second développement* de Makeham, la loi de Lazarus, etc.*

— Enfin, j'ai donné l'expression de $l(x)$ dans le cas le plus général, celui de n quelconque:

$$l(x) = e^{A+Bx+\Sigma e^{r_i x} f_i(x)}$$

où r_i est une quelconque des racines de l'équation *caractéristique:*

$$A_0 + A_1 r + \cdots\cdots + A_n r^n = 0;$$

si r_i est d'ordre λ_i de multiplicité, $f_i(x)$ est un polynôme de degré $\lambda_i - 1$ quand r_i n'est pas nulle, et de degré $\lambda_i + 1$ quand r_i est nulle. Quant au signe Σ, il s'étend à toutes les racines distinctes de l'équation caractéristique.

Je remarquerai en passant que, dans le cas spécial où toutes les racines r_i sont inégales et différentes de zéro, on retombe sur une formule donnée par un de nos collègues hollandais, M. Janse.

Pour rappeler l'ordre n de l'équation différentielle dont a été déduite la fonction $l(x)$, j'ai nommé $l(x)$ *fonction de survie du n^e ordre.* Les lois de Gompertz et de Makeham sont des fonctions de

* Dans le cas de $n = 2$, on obtient en particulier la loi suivante qui ne paraît pas avoir été signalée antérieurement:

$$l(x) = e^{A+Bx+(C+Dx)e^{rx}}$$

survie du premier ordre; celle de Lazarus est du second ordre, et celle de Janse est du n^e ordre.*

4. Second Problème.

Il m'a semblé utile de rappeler ces résultats avant de montrer avec quelle facilité la méthode que j'ai suivie permet d'obtenir la solution du problème suivant, plus général encore.

Les N individus que j'ai considérés plus haut obéissent tous à la *même* loi de survie, $l(x)$. Admettons que la loi suivie par chacun puisse être *différente* des autres; nous sommes ainsi amenés à ce second problème :

« Soient a, b, ..., k les âges de N individus, qui suivent des lois de survie *distinctes ou non*, et supposons que le nombre des vivants à l'âge x, pour un nombre donné de naissances, soit figuré par $l_1(x)$, $l_2(x)$, ..., $l_N(x)$, suivant qu'il s'agit du premier, du second, ..., du N^e individu. Soient, d'autre part, n fonctions de a, b, ..., k, que j'appelle α, β, ..., θ, indépendantes entre elles et indépendantes de t. Quelle doit être la forme respective de $l_1(x)$, $l_2(x)$, ..., $l_N(x)$, pour que l'on ait, quel que soit t,

$$(1) \qquad \frac{l_1(a+t)}{l_1(a)} \cdot \frac{l_2(b+t)}{l_2(b)} \cdot \cdots\cdots \frac{l_N(k+t)}{l_N(k)} = G(\alpha, \beta, ..., \theta, t)?»$$

Il est évident que ce second problème a au moins une solution, celle du premier qui n'en est qu'un cas particulier. En supposant en effet que l'on a identiquement

$$l_1(x) = l_2(x) = \cdots = l_N(x),$$

on retombe sur le premier problème.

Mais il n'est pas nécessaire de supposer cette identité : les fonctions envisagées peuvent être distinctes.

Pour l'établir, je n'aurai qu'à répéter presque mot à mot le raisonnement que j'ai tenu jadis dans ma Thèse, à l'occasion du premier problème.

5. Solution du Second Problème.

Les dérivées logarithmiques des deux membres de (1), par rapport à t, sont égales, puisque, par hypothèse, (1) est une identité.

$$\frac{l'_1(a+t)}{l_1(a+t)} + \frac{l'_2(b+t)}{l_2(b+t)} + \cdots\cdots + \frac{l'_N(k+t)}{l_N(k+t)} = \frac{G'_t(\alpha, \beta, ..., \theta, t)}{G(\alpha, \beta, ..., \theta, t)}$$

En posant, conformément aux notations anglaises,

$$\frac{l'_1(x)}{l_1(x)} = -\mu_1(x), \frac{l'_2(x)}{l_2(x)} = -\mu_2(x), \cdots, \frac{l'_N(x)}{l_N(x)} = -\mu_N(x),$$

et en outre

$$\frac{G'_t(\alpha, \beta, ..., \theta, t)}{G(\alpha, \beta, ..., \theta, t)} = -F(\alpha, \beta, ..., \theta, t),$$

on a :

$$(2) \qquad \mu_1(a+t) + \mu_2(b+t) + \cdots + \mu_N(k+t) = F(\alpha, \beta, ..., \theta, t).$$

Comme la relation (2) doit aussi avoir lieu quel que soit t, nous pouvons encore égaler les dérivées des deux membres prises par rap-

* M. H. Poterin du Motel a consacré à ces lois généralisées plusieurs pages substantielles de sa magistrale *Théorie des Assurances sur la Vie.*

port à t, et cela n fois successivement. Faisons ensuite $t=0$ dans tous les résultats, nous obtenons le système :

$$(3)\quad \begin{cases} \mu_1(a) + \mu_2(b) + \cdots + \mu_N(k) = F_0, \\ \mu'_1(a) + \mu'_2(b) + \cdots + \mu'_N(k) = F_1, \\ \cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots \\ \mu_1^{(n)}(a) + \mu_2^{(n)}(b) + \cdots + \mu_N^{(n)}(k) = F_n, \end{cases}$$

F_0, F_1, ..., F_n étant ce que deviennent $F(a, \beta, \ldots, \theta, t)$ et ses n premières dérivées prises par rapport à t, quand on y fait $t=0$.

Les seconds membres du système (3) sont au nombre de $n+1$ et, par hypothèse, ne dépendent que de n variables, α, β, ..., θ : il y a donc une relation entre les premiers membres.

Ces premiers membres constituent $n+1$ fonctions de N variables indépendantes, a, b, ..., k. La condition nécessaire et suffisante pour qu'il y ait entre eux une relation indépendante de ces variables est, en vertu d'un mémoire de Jacobi, que les déterminants fonctionnels de ces $n+1$ fonctions par rapport à $n+1$ quelconques des variables soient égaux à zéro.

L'un de ces déterminants est :

$$(4)\quad \begin{vmatrix} \mu'_1(a) & \mu'_2(b) & \cdots\cdots \\ \mu''_1(a) & \mu''_2(b) & \cdots\cdots \\ \cdots\cdots & \cdots\cdots & \cdots\cdots \\ \mu_1^{(n+1)}(a) & \mu_2^{(n+1)}(b) & \cdots\cdots \end{vmatrix}$$

Pour que ce déterminant soit identiquement nul, il faut et il suffit qu'il y ait une même relation linéaire et homogène entre tous les éléments de chacune de ses lignes ou de ses colonnes. Soit, en particulier pour la première colonne,

$$A_0\mu'_1(a) + A_1\mu''_1(a) + \cdots\cdots + A_n\mu_1^{(n+1)}(a) = 0 ;$$

A_0, A_1, ..., A_n sont indépendants de a et ne sont pas tous nuls à la fois.

Comme a est un âge arbitraire, on peut dire que la fonction $\mu_1(x)$ satisfait à l'équation :

$$A_0\mu'_1(x) + A_1\mu''_1(x) + \cdots\cdots + A_n\mu_1^{(n+1)}(x) = 0.$$

Ce résultat a été obtenu avec la première colonne de (4). Si nous avions opéré avec la seconde, nous serions arrivés pareillement à

$$A_0\mu'_2(x) + A_1\mu''_2(x) + \cdots\cdots + A_n\mu_2^{(n+1)}(x) = 0,$$

les A_0, A_1, .., A_n *étant les mêmes que ci-dessus.*

En répétant toujours le même raisonnement, soit avec une autre colonne de (4), soit avec une quelconque des colonnes des autres déterminants fonctionnels tels que (4) qui ont à intervenir, nous voyons que toutes les conditions nécessaires et suffisantes, révélées par Jacobi, se résument ici d'une manière bien simple :

« Si $\mu_g(x)$ représente une quelconque des fonctions $\mu_1(x)$, $\mu_2(x)$, ..., $\mu_N(x)$, cette fonction satisfait à

$$(5)\quad A_0\mu'_g(x) + A_1\mu''_g(x) + \cdots\cdots + A_n\mu_g^{(n+1)}(x) = 0,$$

où les A_0, A_1, ..., A_n sont indépendants de x et de g, c'est-à-dire constants. »

En posant

$$\mu'_g(x) = y,$$

(5) devient

$$A_0 y + A_1 y' + \cdots\cdots + A_n y^{(n)} = 0,$$

c'est-à-dire précisément l'équation différentielle que nous avons rencontrée dans le premier problème.

6. Expression des Fonctions de Survie distinctes satisfaisant au Second Problème.

Les fonctions $\mu'_g(x)$ sont donc soumises à la seule condition commune de dépendre toutes des racines r_i d'une même équation caractéristique :

$$A_0 + A_1 r + \cdots\cdots + A_n r^n = 0.$$

Mais elles peuvent en dépendre de manières différentes, car l'intégrale générale de (5) comprend n constantes arbitraires en dehors de ces racines ; et puisque ces constantes sont arbitraires, des annulations convenables feront évanouir *à volonté* les termes où interviennent une, deux, ou davantage, de ces racines r_i. Je juge oiseux d'insister plus longuement sur cette grande variété de fonctions $\mu_g(x)$ capables de satisfaire simultanément à la question.

Quant à l'expression générale, $l_g(x)$, des fonctions $l_{1(x)}$, $l_{2(x)}$, ..., $l_{N(x)}$, recherchée en dernière analyse par notre problème, on peut l'écrire ainsi :

$$l_g(x) = e^{-\int \mu_g(x) dx},$$

$$= e^{A + Bx + \Sigma e^{r_i x} f_i(x)},$$

comme la fonction $l(x)$ du premier problème.

Mais les nouvelles constantes d'intégration A et B, et les n constantes introduites par les coefficients des polynômes $f_i(x)$, tout en étant des constantes par rapport à x, ne sont pas astreintes à être *identiques* dans les diverses fonctions $l_g(x)$. En d'autres termes, ces constantes peuvent passer pour des fonctions de g.

Toutes les fonctions $l_g(x)$ ne gardent entre elles qu'un point de contact, l'équation caractéristique, c'est-à-dire les racines r_i : cette équation fixe l'*ordre n commun à toutes les fonctions* $l_g(x)$ intervenant au problème, cet ordre n pouvant être supérieur ou égal à l'*ordre* particulier de chacune des fonctions considérées isolément.*

* On a souvent observé, depuis Woolhouse, que dans la plupart des tables d'expérience interpolées par la formule de Makeham,

$$l(x) = e^{A + Bx + Cq^x},$$

on trouvait, fort approximativement,

$$\text{Log } q = 0{,}04.$$

Or le Log q joue le rôle, à une constante près, d'une racine r_i. Cette simple remarque laisse entrevoir que, si mes considérations sont exclusivement théoriques, la nature cependant semble s'accorder assez bien avec elles pour réaliser ce *point de contact* demandé par l'analyse.

7. Aperçu de quelques Applications.

L'emploi simultané de lois de survie distinctes n'est pas un phénomène exceptionnel en pratique. En voici plusieurs cas :

Lorsqu'il s'agit d'une rente de survie, les Compagnies françaises usent de la table AF pour les assurés, de la table RF pour les bénéficiaires. — On a déjà construit pour les rentes viagères des tables distinctes suivant les sexes. — On étudie, un peu partout, la sélection, volontaire ou exigée, des assurés ou des rentiers, et les modifications* qu'elle introduit dans la loi générale de mortalité. — L'assurance contre les accidents réclame des tables de mortalité de valides et d'invalides.†

Toutes ces questions, et bien d'autres, conduisent, soit à des lois particulières, altérations plus ou moins profondes d'une loi d'ensemble, soit à des lois franchement indépendantes. Si l'on en croit les enseignements du passé, l'expression analytique de ces lois s'aidera plus d'une fois des fonctions $l_g(x)$, déjà consacrées par l'usage, ou de celles qui en sont l'extension spécifiée dans la présente étude. Leur variété presque indéfinie est une précieuse ressource : c'est une série toute prête de nuances dans la figuration de la mortalité humaine. Et l'on hésitera d'autant moins à s'en servir que l'on connaît maintenant dans quelles conditions se conserve, *pour un groupe de ces fonctions*, la propriété essentielle d'une fonction de survie d'ordre n considérée isolément. Si j'ai établi cette propriété dans le premier problème, où les N individus obéissaient tous à une *seule* loi de mortalité, j'ai montré en effet dans le second problème que cette restriction n'était pas nécessaire : en résumé, *même quand plusieurs fonctions* $l_g(x)$ *seront en concours*, les N âges en jeu se remplaceront tout aussi bien par des fonctions de ces âges, en nombre au plus égal à une valeur fixe, n. On ne perd donc pas le bénéfice des importantes simplifications qu'offrait le premier problème pour les valeurs de N supérieures à n.

ABSTRACT.

ON THE SIMULTANEOUS USE OF DISTINCTIVE FUTURE LIFE LAWS.

By Albert Quiquet.

In 1893 I have shown that the laws of Gompertz and Makeham may be looked upon as a particular case of "Future life functions," with the following property: Through their use, the probability of survival of a group of N individuals during the time t can be expressed only by n variables, n being smaller than N; these n variables are independent of t and depend only upon the N ages considered.

* M. Poterin du Motel, mettant la loi de Makeham sous la forme

$$\mu(x) = a + bc^x,$$

a proposé de considérer b, et b seulement, comme fonction de l'*âge d'entrée* z (voir *Bulletin des Actuaires français*, octobre 1893 et janvier 1895). — A la suite de M. Poterin du Motel, j'ai proposé (*Bulletin*, avril 1896), dans l'expression générale d'une fonction de survie d'ordre n telle que $l(x)$, de considérer B et les r_i comme indépendants de z, et de se borner, comme fonctions de z, aux n coefficients des polynômes $f_i(x)$. — M. Poterin du Motel (*Bulletin*, avril 1897), pour le cas des fonctions de survie du second ordre, a complété cette proposition, en y introduisant un procédé qu'il avait précédemment indiqué d'une manière générale.

†M. Weber a préconisé l'application à cet objet de la formule de Lazarus (*Bulletin*, juillet 1897).

I had only treated of the case where the N individuals were all subject to the same law of future life. In the present study I have done away with this restriction and have considered the more general case where the N individuals are subject to distinctive laws of future life.

KURZE NOTIZ.

ÜBER DIE GLEICHZEITIGE ANWENDUNG VON VERSCHIEDENEN ÜBERLEBENSGESETZEN.

Von Albert Quiquet.

In 1893 habe ich festgestellt, dass die Gompertz's- und Makeham'schen Regeln als ein besonderer Fall von „Ueberlebens-Funktionen" angesehen werden können, mit folgender Eigenthümlichkeit: Bei deren Anwendung kann die Wahrscheinlichkeit einer Gruppe von Individuen, N, als ein Ganzes einer Zeit t zu existieren, nur durch das veränderliche n ausgedrückt werden, da n geringer ist als N; diese veränderlichen Zeichen n sind unabhängig von t und hängen einzig von den in Rede stehenden N Altern ab.

Ich hatte nur die Fälle behandelt, wo die Individuen N alle demselben Ueberlebens-Gesetze folgen. In der gegenwärtigen Betrachtung habe ich diese Beschränkung fallen lassen und habe die allgemeineren Fälle ins Auge gefasst, wo die Individuen N den verschiedenen Ueberlebens-Gesetzen folgen.

NOTES ON ACTUARIAL FUNCTIONS.

BY

W. Palin Elderton, F.I.A.,
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These notes have been put together while a piece of practical graduation was being done, and they refer almost entirely to the New British Offices' experience. Their chief objects are to see how the three functions q, m, and μ are connected with the exposed to risk and deaths in actual investigations and to show that the results are of some practical importance.

I.—Exposed to Risk.

When the exposed to risk of death is calculated an attempt is made to find the number exposed as at the beginning of the year; or, to be more explicit, the number found represents that number of persons that would account for the actual deaths had the exposed been unaffected by any influence other than death throughout the year under consideration. This is an imaginary state of things, for, if we take a select mortality table formed from $n_{[x]}$ entrants at age x, we see that the true number of persons exposed at that age is $n_{[x]}$ but, as a certain number, w say, withdraws during the year, this $n_{[x]}$ only holds good for a short time and is then reduced. Unless $n_{[x]} - w_{[x]+0}$ (the expression used for the exposed to risk) means and represents a number *at age x*, the fraction $\frac{\text{exposed}}{\text{deaths}}$ does not give the rate of mortality, and the statement that the fraction gives this rate involves the assumption that the exposed represents a number of cases at the beginning of the year considered. Now, as a matter of fact, the exposed varies, and it might be represented graphically as in the figure below, which means that the exposed (as a function)

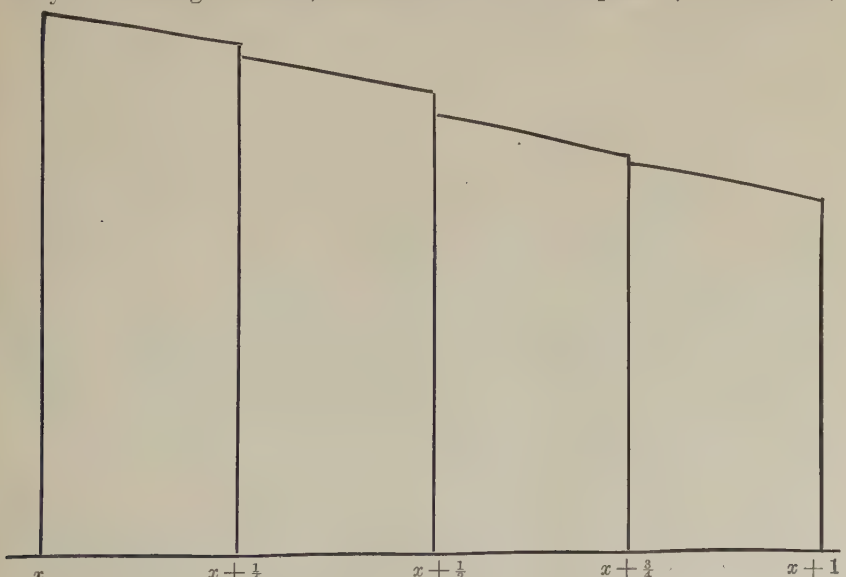

Figure showing the Exposed to Risk from duration x to $x+1$.

is an area, and the methods we adopt are approximations for finding the ordinates on the assumption that the jagged line representing the exposed, is made to run more smoothly by the elimination of the drops in height caused by withdrawals.

When our select tables are complete they are amalgamated to give an aggregate table, and we may now consider the exact nature of the exposed to risk in this case. The age at entry is not the exact age; for persons assumed to be x at entry may have been of any age between $x - \frac{1}{2}$ and $x + \frac{1}{2}$, and the result of this, when we amalgamate select tables, is that we get an aggregate which gives the exposed as an area even if the select tables gave an ordinate; the reason for the change is that in the former we make our tabulations as regards the age, and in the latter as regards the duration.

II.—Deaths.

In the select tables the deaths clearly represent the number dying between exact duration n and exact duration $n + 1$, but in the aggregate tables they represent persons dying between $x - \frac{1}{2}$ and $x + 1\frac{1}{2}$. For, if two persons aged 20.49 and 19.51, respectively, assured their lives they would both go into the group called "age at entry 20," then, if they died in the same year of duration n, the curtate age is put $20 + n$, but the group in which the age at death falls will cover $20.49 + n + .99 = 21.48 + n$, and $19.51 + n + .01 = 19.52 + n$. The result is that consecutive groups overlap as regards age. The method is open to objections on this account, but it is a little hard to see how it can be improved unless the select and aggregate tables are obtained independently, and even this course is not without objection.

If we assume an even distribution in the ages at entry and in the deaths, then if N persons enter at nearest age x and die with duration n, there will be $N \int_{-\frac{1}{2}}^{+\frac{1}{2}} (1 - t)dt = \frac{6}{8}$ N, who should be in the age group $x + n$. $N \int_{\frac{1}{2}}^{1} (1 - t)dt = \frac{1}{8}$ N, who should be in the age group $x + n + 1$ and a like number who should be in the age group $x + n - 1$.

The assumptions involved in the aggregate tables in the equation $\frac{\theta_x}{E_x} = q_x$ are that θ_x represents the number dying from x to $x + 1$, and E_x the number exposed at age x, while, as we have already seen, the assumption in the select tables in $\frac{\theta_{[x]+n}}{E_{[x]+n}} = q_{[x]+n}$ is that $E_{[x]+n}$ represents the number exposed at exact duration n. Of course, these assumptions may be quite correct or the errors in the case of the aggregate tables may counterbalance or the graduation of the table may put things right if an error is introduced in construction; but even if the correct result may come out it is well to bear in mind the true nature of the functions with which we deal. We should also remember that, strictly speaking, the select and aggregate tables in the new British Offices' experience run on slightly different lines; the distribution in the series of select tables analogous to that of the deaths in the aggregate tables is found by distributing the number of cases having the same duration according to age at entry.

III.—The Values of q, m, and μ.

Let us assume that the curves $y = \phi(x)$ and $y = \theta(x)$ have been found for the exposed and deaths respectively, then it is required to find values for q, m, and μ.

The two equations may be found from the unadjusted data or one $y = \phi(x)$ say, may be assumed as a hypothetical series, and the other obtained by taking $y = \theta(x)$, graphically or arithmetically, so as to fit the values resulting from multiplying the hypothetical exposed by q. The expressions for q, m, and μ given below, are unaffected by the process.

Now q_x is the probability of a person of exact age x dying in a year, *i.e.* the number of persons dying during the year x to $x+1$ divided by the number alive at the beginning of the year, which means the area of $q = \theta(x)$ from x to $x+1$ divided by the value of $\phi(x)$ at x.

$$\therefore q_x = \frac{\int_x^{x+1} \theta(x)\, dx}{\phi(x)}$$

Again, the function m_x gives "the ratio of deaths to population" (Text Book, p. 5, § 12), and since population can clearly be viewed as the same function as exposed

$$\therefore m_x = \frac{\int_x^{x+1} \theta(x)\, dx}{\int_x^{x+1} \phi(x)\, dx}$$

Finally, μ_x is the instantaneous rate

$$\therefore \mu_x = \frac{\theta(x)}{\phi(x)}.$$

The process followed in the text-book of finding these functions from the stationary population is a simple particular case of the problem.

The approximations for finding μ and m would be unnecessary if we graduated both deaths and exposed by curves, for we should obtain the values of these functions directly from the curves, and this seems an argument in support of Milne's method of graduating deaths and populations separately, though his method would have to be altered so as to give smooth curves.

IV.—Principles in Practice.

As examples of the use of the principles given above, we will take two hypotheses and show how they may be obtained by working backwards from our last definition.

(1) *Gompertz Law* $\mu_x = Bc^x = Be^{tx}$

Now let us assume that $\phi(x)$ takes an exponential form, say, the well-known normal curve of error, $y = \frac{N}{\sigma\sqrt{2\pi}}\, e^{-x^2/2\sigma^2}$, then

$$\theta(x) = Be^{tx} \times \frac{N}{\sigma\sqrt{2\pi}}\, e^{\frac{-x^2}{2\sigma^2}} = \frac{N}{\sigma\sqrt{2\pi}}\, e^{-(x-h)^2/2\sigma^2}$$

which means that the Gompertz hypothesis may be restated: "If the exposed to risk be assumed to be the normal curve of error then the deaths will be represented by a like curve having the same standard deviation (σ), but a different origin." *

(2) *Makeham's Law* $\mu^x = A + Bc^x$.

Taking the normal curve of error as the exposed, and proceeding as above, we see that the deaths can be represented by the sum of two

* This result has been given by me in a paper "Graduation and Analysis of a Sickness Table," see Biometrika, Vol. II., Parts 3 and 4. In this paper I have also given Makeham's Law in terms of the normal curves and the statistical examples of the H^m and Sutton's Sickness Table.

normal curves having the same standard deviation and one of them having the same origin as the exposed curve.

In both (1) and (2) q, m, and μ can be found from tables of the probability integral.

V.—Application of Makeham's Hypothesis.

The results given in IV. can be applied in graduation, for we have merely to take the normal curve of error as a hypothetical exposed curve, multiply by the values of q_x and graduate the result by the sum of two normal curves of known standard deviation. The best way to do this is by moments, and if we put the sum of two normal curves in the form

$$y = \frac{N_1}{\sigma\sqrt{2\pi}}\, e^{-x^2/2\sigma^2} + \frac{N_2}{\sigma\sqrt{2\pi}}\, e^{-(x-h)^2/2\sigma^2}$$

we obtain by taking the integrals $\int_{-\infty}^{+\infty} xydx$ and $\int_{-\infty}^{+\infty} x^2ydx$ the expressions hN_2 and $N_1\sigma^2 + N_2(\sigma^2 + h^2)$ respectively, or dividing by $N_1 + N_2$, the total frequency, we have

$$\text{the first moment} = \frac{hN_2}{N_1+N_2}$$

$$\text{and the second moment} = \frac{N_1\sigma^2 + N_2\sigma^2 + N_2h^2}{N_1+N_2} = \sigma^2 + h\mu_1$$

$$\text{or } h = \frac{\mu_2 - \sigma^2}{\mu_1}$$

$$\text{and } N_2 = \frac{\mu_1(N_1+N_2)}{h}$$

This is the complete solution for $N_1 + N_2$, the total frequency and σ the standard deviation of the curve assumed for the exposed are known.

If Makeham's curve represented the mortality accurately it would make very little difference what normal curve was used for the exposed to risk, but owing to the well-known fact that the Makeham hypothesis only represents part of a mortality table, we shall find that the value of c will vary according to the origin and standard deviation chosen for the exposed curve, which should be taken so that the numbers representing the deaths are insignificant at the end of the part of the table to which the Makeham hypothesis is applied.

VI.—Statistical Example.

As an example of the use of the method, I will take the Hm table. Bearing in mind the remarks made above, I chose $\sigma = 8.3$ and 50.5 as origin. I then wrote down the values of the ordinates of the curve from Mr. W. F. Sheppard's "New Tables of the Probability Integral" (Biometrika, vol. ii., part 2) and multiplied by the appropriate values of q_x. The figures I obtained were multiplied by 100,000 so as to give whole numbers, and only three figures were retained to represent the number of deaths corresponding to my hypothetical list of exposed. I then calculated the moments about age 50½ in groups of five ages; that is, I grouped ages 18 to 22, 23 to 27, and so on, and then multiplied each group by its distance from the "50" group for the first moment and by its (distance)^2 for the second moment. The values of the moments after dividing by 16,196, the total number in all the groups, were .94486 and 4.0838, or 4.0005, for Mr. Sheppard's adjustment of the second moment by deduction of .083 was used to give effect to the fact that the values

I was working with represented areas. Using the equations given in V. I found $h = 1.29405$ for a five-year unit, or 6.4703 for a one-year unit, and hence $log_{10}c = \frac{h}{\sigma^2} + log_{10}e = .040664$.

The text-book gives .039657, and Professor Karl Pearson recently gave .0406405.

To show how short this method is, I may remark that Makeham's constants were obtained for two tables on a single sheet of foolscap-sized paper. With a small increase in labour the results could be given to a greater number of decimal places.

I also tried the new method of application in connection with the male annuitant's table (new experience) after five years, and obtained .037033 for $log_{10}c$, as compared with .038 used by Mr. G. F. Hardy. In making my calculations the same normal curve was used as that adopted for the H^m table, but, as the annuity material is very rough at the early ages, I chose age sixty-five as origin. The $O^m(^5)$ table gave .039692 for $log_{10}c$ by the new method (origin and standard deviation as with the H^m table) as against .039 used by Mr. Hardy. In order to see if the difference between Mr. Hardy's values and mine was due to his having chosen a value suitable for select tables, I found $log_{10}c$ for the first five years of assurance and obtained the following results:

Year of Assurance	Log_{10} c
0	.0343
1	.0320
2	.0333
3	.0383
4	.0444

The average of these values of $log_{10}c$ is .03646, and the value after five years is .03969, but it would be wrong to find a value suitable for the whole experience by taking the mean of these two figures, for the latter is supported by a greater amount of data than the former. The number of years of risk (exposed) after five years, is 5324862, and for the aggregate table the number of years is 7056863; to find a reasonable value for the whole table I considered that the over and under five years had weights of 5324862 and 1732001 respectively. I then found .03891 as the value of $log_{10}c$, which is in close agreement with Mr. Hardy's figure.

VII.—Values of the Force of Mortality.

Another use to which the suggested view of the functions might be put would be the evaluation of the force of mortality at age 0 and for select tables at the moment of entry. For if we can approximate to the shapes of the curves $y = \theta(x)$ and $y = \phi(x)$ we can obtain the required values. It is almost needless to point out that a very extensive investigation would be required, and at present we can merely refer to the possibility of solution. It is worth remark, however, that as we have assumed that the exposed in a select table represents an ordinate, we have only to find an equation representing the deaths in order to give a numerical solution.

VIII.—Sickness Functions.

The examination of sickness functions may proceed on the same lines as those indicated above for mortality, and we shall then obtain the same formulæ for q, m, and μ, where q stands for the rate of sickness, m for the central sickness rate, and μ for the force of sickness. As the

method of looking at these fundamental functions in the present paper derives them from the exposed to risk and number of weeks sickness, or years sickness (to make sickness more nearly analogous to death functions) there is no reason why we should not make use of them in the same way as we have already done for mortality; a single example will be sufficient as illustration.

IX.—Makeham's Hypothesis with Sickness.

This hypothesis, as restated in V. and VI., was tried with Sutton's sickness table (p. 1153 of Report), or rather with the graduated figures obtained therefrom,* and the same equation being used for the exposed as that taken from the H^m table, I obtained $log_{10}c$=.0465901, and working out the graduated figures according to Makeham's curve, I found they gave a good result from age thirty. I also made a trial, using σ=12.5 and origin 47.5 and found $log_{10}c$=.040133, but this gave a worse graduation, except below twenty and above eighty.

For another purpose I had already calculated a column analogous to the "l" column of a mortality table, and by taking the logarithm of the second difference of the logarithms of this column I found that I obtained values which were constant above thirty at .048, which agrees fairly well with the value found for $log_{10}c$.

For the Manchester Unity table $log_{10}c$ was .045540.

This concludes the present investigation, and in examining the examples it should be remembered that they have been chosen to illustrate the theory expressed in III., and not as examples of graduation. The fact that it is sometimes found impossible to apply Makeham's hypothesis even to a large part of a mortality table, is a strong argument for discarding it altogether, and I have not used it because it seems the best possible method, but because it is one that appeals to us strongly on account of the assistance it renders in complex calculations. On the other hand, there can hardly be an easier method of graduation than that given above, and it may be remarked that it gives some indication of the weights of the various parts of the table for the number exposed to risk starts at a small figure, rises to a maximum, and then decreases again; and the normal curve of error does the same. Putting aside the practical results altogether, it seems advisable to define our elementary functions in the terms of the exposed to risk and deaths from which they are obtained, and my attempt to do so, is, as stated at the outset, the primary object of the present paper.

RÉSUMÉ.

REMARQUES SUR LES FONCTIONS ACTUARIELLES.

Par W. P. Elderton.

L'article commence par traiter des fonctions exposées aux risques et aux décès en recherches actuelles, la nouvelle expérience des Offices anglais étant prise comme exemple. Il montre que les tables collectives et choisies ne sont pas semblables dans les suppositions qu'elles font en égard à ces deux fonctions. On donne des formules pour trouver les valeurs du taux de mortalité (q_x) du taux central de décès (m_x) et de la force de mortalité (u_x) en thèmes des exposés et

*See Biometrika, Vol. II., part 3.

†See the new Female Annuitant Experience.

des décès; sur la base de ces derniers on examine les hypothèses de Gompertz et de Makeham et on suggère une nouvelle méthode d'application dont on donne des exemples numériques. La nouvelle méthode rétablit l'hypothèse de Makeham comme suit: Si l'on prend comme exposée la courbe normale d'erreur, les décès peuvent être représentés par la somme de deux courbes normales qui ont le même étalon de déviation et dont l'une a la même origine que la courbe des exposés.

Les fonctions de maladie peuvent se traiter de la même manière que les fonctions de mortalité et on donne les valeurs de $log_{10}c$ après avoir essayé l'hypothèse de Makeham pour deux tables.

KURZE NOTIZ.

ANMERKUNGEN ÜBER AKTUARIAL-FUNKTIONEN.

Von W. P. Elderton.

Die Abhandlung spricht zuerst von den Risiko- und Todesfällen ausgesetzten Funktionen bei thatsächlichen Untersuchungen, wobei die Erfahrungen der neuen „British Offices" als Beispiel gegeben werden, und erläutert, dass die gesammelten und auserlesenen Tabellen nicht übereinstimmen in der Auffassung, die sie bezüglich dieser zwei Funktionen haben. Es sind Formeln gegeben, um den Werth der Sterblichkeitsrate zu finden (q_x) die Haupt-Todesrate (m_x) und die Sterblichkeits-Stärke (u_x) im Verhältnis zu den Risiko ausgesetzten und Todesfällen, und auf der Basis der letzteren werden die Gompertz- und Makeham-Hypothesen und eine neue Methode der Anwendung derselben vorgeschlagen unter Beifügung von Beispielen in Zahlen. Diese neue Methode bestätigt die Makeham-Hypothese wie folgt: Wenn die Normal-Irrthums-Linie als die ausgesetzte angenommen wird, dann können die Todesfälle durch die Summe von zwei Normal-Linien dargestellt werden, welche dieselbe Normal-Abweichung haben, und von denen eine dieselbe Ursache als die ausgesetzte Linie hat.

Krankheits-Funktionen können in derselben Weise behandelt werden wie Sterblichkeits-Funktionen, und nachdem Makeham's Hypothesen in zwei Tabellen versucht sind, werden die Werthe von $log_{10}c$ gegeben.

ON THE DEVELOPMENT OF TABLES DERIVED FROM AN ABRIDGED EXPRESSION FOR THE CALCULATED EXPECTATION OF FUTURE LIFE.

BY

JAMES MEIKLE, F.F.A., F.I.A.
Past President of the Faculty of Actuaries.

The following remarks on the development of tables based upon a contracted expression for the calculated expectation of future life are the results of a leisure hour. They by no means aim at any process to be preferred over those methods presently in use. If they do aim at anything, it is simplicity, believing that while the process presently employed for the construction of tables derived from past experience seems to me to be rigidly accurate as reflecting that experience, the processes that should be employed in forecasting future experience seem to me that they might have partaken of a slightly different character. The two experiences may not coincide. What is past is known, what is future is unknown. And the lessons that might have been gained from a review of the successive steps of the past might have led up to a recasting of that experience into something that might have been held to indicate more surely what the future was most likely to require, so that, at any rate, the first stage of the future may be more accurately forecast.

The statistics which form the basis of past experience are all of a very confused and complicated character. The experience of thirty years and of a hundred offices are blended into one table. The mortality of lives of any one age in 1864 is united with the mortality of the same age in each of the succeeding thirty years, which completely conceals any improvement in mortality. The experience of the whole of the hundred offices are so thoroughly mixed that it is impossible for any one office to conclude that the mixture will represent its own future. Thus it is seen that offices freely advertise that their mortality of the past year is only—say—75 per cent. of the published united experience of one hundred offices, and thus they seem to publish a confession that there is apparently a setting in of a flow of improved mortality from the past into the future, so that the tables gathered from the past will not exactly forecast the future.

Apart altogether from these reflections, I have been led to find an expression for the probable future lifetime which a life of any age may be led to expect when the only factor in the equation is the age of the life. It is a popular inquiry which persons of every age in every climate put to themselves, and which, while it is impossible to answer definitely for any one life, is fairly set forth for the multitude in the developments of all mortality and longevity statistics. The earliest tables exhibited the number of years of life which had been enjoyed by some persons and which were held to indicate the number which would be enjoyed by

others of the same age. The calculation is very simple. Thus: If of 30 persons alive at age 95 it was shown

That	7	died	in the	following	year.
"	5	died	in the	next following	year.
"	4	"	"	"	"
"	3	"	"	"	"
"	2	"	"	"	"
"	2	"	"	"	"
"	2	"	"	"	"
"	2	"	"	"	"
"	2	"	"	"	"
"	1	"	"	"	"
Total.....	30				

the years of life enjoyed by each year's deaths will be:

Those dying in the	1st year $= 7 \times .5$	have enjoyed 7 half-years	$=$	$3\frac{1}{2}$ years
" "	2d year $= 5 \times 1.5$	.....	$=$	$7\frac{1}{2}$ years
" "	3d year $= 4 \times 2.5$	.....	$=$	10 years
" "	4th year $= 3 \times 3.5$	.....	$=$	$10\frac{1}{2}$ years
" "	5th year $= 2 \times 4.5$	.....	$=$	9 years
" "	6th year $= 2 \times 5.5$	.....	$=$	11 years
" "	7th year $= 2 \times 6.5$	.....	$=$	13 years
" "	8th year $= 2 \times 7.5$	.....	$=$	15 years
" "	9th year $= 2 \times 8.5$	.....	$=$	17 years
" "	10th year $= 1 \times 9.5$	.....	$=$	$9\frac{1}{2}$ years
		Total years of life enjoyed by the 30	$=$	106 years
		Average lifetime enjoyed by each of the 30	$=$	3.533

When stated symbolically, the expression for the years of life lived by those alive at age ninety-five

$$= \tfrac{1}{2}(l_{95}-l_{96}) + \tfrac{3}{2}(l_{96}-l_{97}) + \tfrac{5}{2}(l_{97}-l_{98}) + \tfrac{7}{2}(l_{98}-l_{99}) + \tfrac{9}{2}(l_{99}-l_{100}) + \tfrac{11}{2}(l_{100}-l_{101}) + \tfrac{13}{2}(l_{101}-l_{102}($$
$$+ \tfrac{15}{2}(l_{102}-l_{103}) + \tfrac{17}{2}(l_{103}-l_{104}) + \tfrac{19}{2}(l_{104}-l_{105}) + (\tfrac{19}{2}\, l_{105})$$
$$= \tfrac{1}{2}\, l_{95} + \tfrac{3}{2}\, l_{96} + \tfrac{5}{2}\, l_{97} + \tfrac{7}{2}\, l_{98} + \tfrac{9}{2}\, l_{99} + \tfrac{11}{2}\, l_{100} + \tfrac{13}{2}\, l_{101} + \tfrac{15}{2}\, l_{102} + \tfrac{17}{2}\, l_{103} + \tfrac{19}{2}\, l_{104}$$
$$- \tfrac{1}{2}\, l_{96} - \tfrac{3}{2}\, l_{97} - \tfrac{5}{2}\, l_{98} - \tfrac{7}{2}\, l_{99} - \tfrac{9}{2}\, l_{100} - \tfrac{11}{2}\, l_{101} - \tfrac{13}{2}\, l_{102} - \tfrac{15}{2}\, l_{102} - \tfrac{17}{2}\, l_{104}$$
$$\tfrac{1}{2}\, l_{95} = l_{\frac{95}{2}} + l_{96} + l_{97} + l_{98} + l_{99} + l_{100} + l_{101} + l_{102} + l_{103} + l_{104}$$
$$= 15 + 23 + 18 + 14 + 11 + 9 + 7 + 5 + 3 + 1 \text{ (see Carlisle table)}$$
$$= 106.$$

and accordingly the average number of years lived by each of the 30 persons alive at age 95 $= \frac{106}{30} = 3.533$, or generally $= \mathring{e}_x = \frac{1}{2} + \frac{\Sigma\, E_{x+1}}{l_x}$, which expression is usually named the "complete" expectation.

When the half-year of death is neglected the expression receives the name of the Curtate expectation of life $= E_x = \frac{\Sigma\, l_{x+1}}{l_x}$.

In the following remarks sometimes the one and sometimes the other is referred to.

Only two or three attempts have been made to find an expression for the expectation of life—De Moirve, Biden, Willich—but these all failed to yield satisfactory results for the whole term of life—they stopped at or about the age of eighty-six, and required a new formula for higher ages. Orchard made a nearer approach to a concise formula, but it also was too complicated. It is evident at a first glance at the question that the expression should be a function combined of the present age and of the difference between that age and the final age in the table—the entire *possible range* of life must be included in the formula—thus the complete

Expectation at age	10	$= f(104\text{-}10) = f$	94	years.
" "	20	$= f(104\text{-}20) = f$	84	"
" "	30	$= f(104\text{-}30) = f$	74	"
" "	x	$= f(104\text{-}x)$		

and on this slim data the expectation is a regularly lessening percentage of the possible lifetime—thus, according to the

Age x	Carlisle E_x			
10	48.820 = 51.93	per cent.	of	94 = (104 — 10)
20	41.458 = 49.35	"	"	84 = (104 — 20)
30	34.336 = 46.38	"	"	74 = (104 — 30)
40	27.608 = 43.14	"	"	64 = (104 — 40)
50	21.107 = 39.08	"	"	54 = (104 — 50)
60	14.337 = 32.58	"	"	44 = (104 — 60)
70	9.174 = 26.98	"	"	34 = (104 — 70)
80	5.507 = 22.94	"	"	24 = (104 — 80)
90	3.282 = 23.44	"	"	14 = (104 — 90)

from which alone it would not be difficult to find some further factor which would clear away most of the differences. Thus by abating from 51.9 .26 for each year over 10, and then taking that percentage of the possible lifetime.

Similar percentages of each table's possible lifetime are given.

	H^m	H^f	American	Government females (1884)		Government males (1884)	
20	54.6	51.7	54.5	..	....	..	....
30	51.8	50.1	51.9	..	....	..	....
40	48.1	47.9	48.3	..	....	..	....
50	43.2	44.1	43.4	50	46.5	50	41.0
60	37.4	38.1	37.3	60	40.6	60	36.5
70	31.5	31.3	30.9	70	33.3	70	29.8
80	27.8	28.7	25.6	80	27.3	80	25.2
90	33.8	36.7	24.1	90	27.3	90	26.8

I have from time to time made several attempts to find some algebraic expression that would embrace only the age and the total possible lifetime by the table.

The total possible lifetime by the

Carlisle Table is $(104 - x)$, 104 being the age attained by the oldest life.
Healthy Male is $(97 - x)$, 97 " " "
Northampton is $(86 - x)$, 86 " " "

and the expression ultimately formulated into

$$\text{Carlisle} \ldots\ldots (104\text{-}x)^2 A' + (104\text{-}x)\, B' = \breve{E}'_x$$
$$\text{Healthy male} \ldots (97\text{-}x)^2 A'' + (97\text{-}x)\, B'' = \breve{E}'_x$$
$$\text{Northampton} \ldots (86\text{-}x)^2 A''' + (86\text{-}x)\, B''' = \breve{E}'_x$$

For reasons which will eventually appear, I applied the formula to the Curtate expectation $= \breve{E}_x$.

In the expressions for the Carlisle expectation there were ten equations—H^m nine equations—and in the Northampton nine equations. From these equations, the most probable values of A and B were determined.

The following is the entire work for the data of the H^m table.

AGE	Number of possible years of age		
10	87	7569 A + 87 B	= 49.79 *
20	77	5929 + 77	= 41.59
30	67	4489 + 67	= 34.18
40	57	3249 + 57	= 26.92
50	47	2209 + 47	= 19.80
60	37	1369 + 37	= 13.30
70	27	729 + 27	= 8.04
80	17	289 + 17	= 4.21
90	7	49 + 7	= 1.85

* See p. 281, Vol. I. of H^m Statistics.

Multiplying each of these equations by the coefficients of A to find the

Normal in A.

57,289,761 A +	658,503 B =	376,860.51
35,153,041	456,533	246,587.11
20,151,121	300,763	153,434.02
10,556,001	185,193	87,463.08
4,879,681	103,823	43,738.20
1,874,161	50,653	18,207.70
531,441	19,683	5,861.16
83,521	4,913	1,216.69
2,401	343	90.65
Normal in A = 130,521,129 A +	1,780,407 B =	933,459.12

and by the coefficients of B to find the

Normal in B.

658,503 A +	7,569 B =		4,331.73
456,533	+ 5,929	=	3,202.43
300,763	+ 4,489	=	2,290.06
185,193	+ 3,249	=	1,534.44
103,823	+ 2,209	=	930.60
50,653	+ 1,369	=	492.10
19,683	+ 729	=	217.08
4,913	+ 289	=	71.57
343	+ 49	=	12.95
Normal in B = 1,780,407 A +	25,881 B =		13,082.96

The two normal equations are thus:

$$\begin{aligned} 130{,}521{,}129\ A + 1{,}780{,}407\ B &= 933{,}459.12 \\ 1{,}780{,}407\ A + 25{,}881\ B &= 13{,}082.96 \end{aligned}$$

from which

$$A = \frac{933{,}459.12 \times 25{,}881 - 1{,}780{,}407 \times 13{,}082.96}{130{,}521{,}129 \times 25{,}881 - (1{,}780{,}407)^2}$$

$$= \begin{array}{r} 24{,}158{,}855{,}484.72 \\ 23{,}292{,}993{,}564.72 \\ \hline 3{,}378{,}017{,}365{,}530 \\ 3{,}169{,}849{,}085{,}649 \\ \hline \end{array} \quad \frac{865{,}861{,}920}{208{,}168{,}279{,}881} = .0041594 = A$$

$$B = \frac{130{,}521{,}129 \times 13{,}082.96 - 1{,}780{,}407 \times 933{,}459.12}{130{,}521{,}129 \times 25{,}881 - (1{,}780{,}407)^2}$$

$$= \begin{array}{r} 1{,}707{,}602{,}709{,}862 \\ 1{,}661{,}937{,}151{,}462 \\ \hline \end{array} = \frac{45{,}665{,}558{,}400}{208{,}168{,}279{,}881} = .21937 = B$$

The equations thus become

$$H^m \ldots\ldots\ldots\ldots (97-x)^2 \times .0041594 + (97-x) \times .21937 = \breve{E}_x$$

and for the Carlisle $\ldots\ldots\ldots (104-x)^2 \times .0034511 + (104-x) \times .198501 = \breve{E}_x$

" Northampton $\ldots (86-x)^2 \times .0020157 + (86-x) \times .29158 = \breve{E}_x$

" American $\ldots\ldots (99-x)^2 \times .0037949 + (99-x) \times .23978 = \mathring{E}_x$

Of course, it is not to be expected that these several equations will reproduce the expectations correctly; they may differ by half a year or so, but they are calculable by the assistance of slight mnemonical effort, so that without the aid of books of reference it is quite possible to state the expectation at any age.

If A be assumed at .004 and B at .24 and the ultimate age at 100

	Exact value	
$\breve{E}_{20} = 43.8$	43.07	by the last table.
$\breve{E}_{30} = 36.4$	35.85	"
$\breve{E}_{40} = 28.8$	28.48	"
$\breve{E}_{50} = 22.$	21.24	"

It will have been noticed that the values of the H^m, A, and B have been determined from nine equations. Any number may be selected, but, of course, it is necessary that the selected equations should fairly represent the general features of the whole series.

When derived from equations	Ages	A	B
3	10, 50, and 90, the values were.....	.0037825	.24326
4	10, 35, 65, and 90, the values were.....	.0038923	.23661
5	10, 30, 50, 70, and 90, the values were.....	.0040407	.22638
6	10, 25, 40, 55, 70, and 90, the values were.....	.0040577	.22638
9	10, 20, 30, 40, 50, 60, 70, 80, 90, the values were..	.0041594	.21937
17	10, 15, 20, etc., 85, 90, the values were.....	.0040658	.22697

Within the above limits of the values of A and of B some arbitrary latitude of selection may be permitted.

It will now be necessary to demonstrate that the values of A and B obtained by the process exhibited are the most probable of any other possible values, which is proved by showing that the sum of the squares of the differences between the calculated values and the true values are less than the corresponding results for any other values.

Taking the values from the nine equations

$$A = .0041594 \qquad B = .21937$$

Inserting these values in the equations, they become

	Calculated	Actual	Differences Greater	Differences Less
$7569 \times .0041594 + 87 \times .21937 =$	50.568	49.79	.778	....
$5929 \times .0041594 + 77 \times .21937 =$	41.552	41.59	...	.038
$4489 \times .0041594 + 67 \times .21937 =$	33.370	34.18	...	.810
$3249 \times .0041594 + 57 \times .21937 =$	26.018	26.92	...	.902
$2209 \times .0041594 + 47 \times .21937 =$	19.498	19.80	...	.302
$1369 \times .0041594 + 37 \times .21937 =$	13.811	13.30	.511	....
$729 \times .0041594 + 27 \times .21937 =$	8.955	8.04	.915	....
$289 \times .0041594 + 17 \times .21937 =$	4.931	4.21	.721	....
$49 \times .0041594 + 7 \times .21937 =$	1.740	1.85	...	.110
	200.443	199.680	2.925	2.162
The net difference is thus only		.763		.763

and the sum of the squares of these differences is = 3.797923

Now let the values of A and B be assumed to be either both greater or both less, or one greater and the other less, etc.

	A	B	Net difference	Sum of the squares
Let them be.....	00416	.219	.62196	3.801919
Or	00416	.220	1.04496	3.810744
Or	00415	.220	.78615	3.799830
Or	00415	.219	.36315	3.826613

All of which are greater than the correct sum = 3.797923

Thus proving that, for the nine equations, the results are the nearest that

can be obtained. When, however, they are made to represent eighty-seven equations, they may not coincide so closely. The following is the complete series.

AGE	Calculated expectation (curtate)	Actual expectation (curtate) p. 6, Vol. II.	Differences Calculated Results greater	less
10	50.568	49.791	.777	...
11	49.629	49.036	.593	...
12	48.698	48.223	.475	...
13	47.776	47.393	.383	...
14	46.862	46.532	.330	...
15	45.956	45.661	.295	...
16	45.059	44.792	.267	...
17	44.170	43.938	.232	...
18	43.289	43.109	.180	...
19	42.417	42.317	.100	...
20	41.553	41.561	...	.008
21	40.697	40.826	...	.129
22	39.849	40.103	...	.254
23	39.010	39.379	...	.369
24	38.179	38.647	...	.468
25	37.357	37.905	...	.548
26	36.543	37.158	...	.615
27	35.737	36.408	...	.671
28	34.939	35.662	...	.723
29	34.150	34.919	...	.769
30	33.369	34.181	...	.812
31	32.597	33.446	...	.847
32	31.833	32.713	...	.880
33	31.076	31.981	...	.905
34	30.329	31.248	...	.919
35	29.590	30.516	...	.926
36	28.859	29.786	...	.927
37	28.136	29.060	...	.924
38	27.422	28.338	...	.916
39	26.716	27.618	...	.902
40	26.018	26.899	...	.881
41	25.329	26.179	...	.850
42	24.648	25.456	...	.808
43	23.975	24.733	...	.758
44	23.310	24.011	....	.701
45	22.654	23.292	...	.638
46	22.006	22.579	...	.573
47	21.367	21.875	...	.508
48	20.736	21.179	...	.443
49	20.113	20.489	...	.376
50	19.499	19.806	...	.307
51	18.892	19.127	...	.235
52	18.294	18.451	...	.157
53	17.705	17.781	...	.076
54	17.124	17.118	.006	...
55	16.551	16.462	.089	...
56	15.986	15.816	.170	...
57	15.430	15.179	.251	...
58	14.882	14.552	.330	...
59	14.342	13.935	.407	...
60	13.811	13.330	.481	...
61	13.288	12.737	.551	...
62	12.773	12.159	.614	...
63	12.267	11.595	.672	...
64	11.769	11.047	.722	...
65	11.279	10.512	.767	...
66	10.798	9.989	.809	...
67	10.325	9.477	.848	...
68	9.860	8.975	.885	...
69	9.403	8.480	.923	...

AGE	Calculated expectation (curtate)	Actual expectation (curtate) p. 6, Vol. II.	Differences Calculated Results greater	less
70	8.955	7.995	.960	...
71	8.515	7.526	.989	...
72	8.084	7.075	1.009	...
73	7.661	6.648	1.013	...
74	7.246	6.249	.997	...
75	6.839	5.876	.963	...
76	6.441	5.517	.924	...
77	6.051	5.174	.877	...
78	5.670	4.844	.826	...
79	5.296	4.525	.771	...
80	4.931	4.219	.712	...
81	4.575	3.933	.642	...
82	4.226	3.671	.555	...
83	3.886	3.430	.456	...
84	3.555	3.213	.342	...
85	3.231	3.011	.220	...
86	2.916	2.810	.106	...
87	2.610	2.601	.009	...
88	2.311	2.384	...	.073
89	2.021	2.134	...	.113
90	1.739	1.857	...	.118
91	1.466	1.577	...	.111
92	1.201	1.295	...	.094
93	.944	.996	...	.052
94	.696	.704	...	.008
95	.455	.430	.025	...
96	.223	.184	.039	...
97	0	0	...	...

Accordingly, the contracted expression $(97 - x)^2 \times 00416 + (97 - x) \times .219$ fairly represents the Curtate expected duration at all ages from 10 to 97. The expression for the complete expectation is

$$\mathring{E}_x = (97 - x)^2 \times .0039587 + (97 - x) \times .24124.$$

It will be observed that the differences at only two ages come to an unit; and that upon the whole the results coincide with remarkable closeness.

The equation being $(97 - x)^2 \times .0041594 + (97 - x) \times .21937 = \mathring{E}_x$.

The foregoing results have only been produced with three decimals, but the actual computations were made with the full decimals of seven places, and when differenced exhibit a beautiful series with constant second differences. Thus:

Age	$(97-x)^2 \times .0041594$	$(97-x) .21937$	Total	Δ^1	Δ^2
10	31.4824986 +	19.0851900 =	50.5676886		
				.9389462	
11	30.7629224 +	18.8658200 =	49.6287424		.0083188
				.9306274	
12	30.0516650 +	18.6464500 =	48.6981150		.0083188
				.9223086	
13	29.3487264 +	18.4270800 =	47.7758064		.0083188
				.9139898	
14	28.6541066 +	18.2077100 =	46.8618166		

It will be observed that

$$\Delta^2 = 2A$$

and accordingly the same table may be represented by another expression, viz.:

$$E_{x+n} = 50.5676886 - n\,\triangle^1 + \frac{n \cdot n-1}{1 \cdot 2}\,\triangle^2$$

Thus age

$$97 = 50.5676886 - 87 \times .9389462 + \frac{87.86}{1.2} \times .0083188$$
$$= 50.5676886 - 81.6883194 + 31.1206308 = 0$$
$$37 = 50.5676886 - 27 \times .9389462 + \frac{27.26}{1.2} \times .0083188$$
$$= 50.5676886 - 25.3515474 + 2.9198988 = 28.1360400$$

		$\triangle^1$	$\triangle^2$
37	28.1360400		
		.7143386	
38	27.4217014		.0083188 constant as above.
		.7060198	
39	26.7156816		.0083188
		.6977010	
40	26.0179806		

From the general formula above, viz.:

$$= 50.5676886 - (x-10)\,\triangle^1 + \frac{(x-10)\,(x-11)}{1.2}\,\triangle^2$$

to find the most probable values of $\triangle^1$ and $\triangle^2$.

Age	x − 10		
10	0		
20	10	$10\triangle^1 + 45\triangle^2$	= 9.015116
30	20	20 + 190	= 17.198352
40	30	30 + 435	= 24.549708
50	40	40 + 780	= 31.069184
60	50	50 + 1225	= 36.756780
70	60	60 + 1770	= 41.612496
80	70	70 + 2415	= 45.636332
90	80	80 + 3160	= 48.828288

Normal in $\triangle^1$.

$100\triangle^1$	+ 450$\triangle^2$	=	90.151160
400	+ 3,800	=	343.967040
900	+ 13,050	=	736.491240
1600	+ 31,200	=	1,242.767360
2500	+ 61,250	=	1,837.839000
3600	+ 106,200	=	2,496.749760
4900	+ 169,050	=	3,194.543240
6400	+ 252,800	=	3,906.263040
$20400\triangle^1$	+ 637,800$\triangle^2$	=	13,848.771840

Normal in $\triangle^2$.

$450\triangle^1$	+ 2,025$\triangle^2$	=	405.680220
3,800	+ 36,100	=	3,267.686880
13,050	+ 189,225	=	10,679.122980
31,200	+ 608,400	=	24,233.963520
61,250	+ 1,500,625	=	45,027.055500
106,200	+ 3,132,900	=	73,654,117920
169,050	+ 5,832,225	=	110,211.741780
252,800	+ 9,985,600	=	154,297.390080
$637,800\triangle^1$	+ 21,287,100$\triangle^2$	=	421,776.758880

The two normal equations are thus:

$20,400\triangle^1$	+ 637,800$\triangle^2$ =	13,848.77184
$637,800\triangle^1$	+ 21,287,100 =	421,776.75888

$$\triangle^1 = \frac{13{,}848.77184 \times 21{,}287{,}100 - 421{,}776.75888 \times 637800}{20{,}400 \times 21{,}287{,}100 - (637800)^2}$$

$$= \frac{294{,}800{,}190{,}352.640}{269{,}009{,}216{,}813.664} \quad \frac{25{,}790{,}973{,}538}{434{,}256{,}840{,}000} = .938946 \text{ as above.}$$
$$\underline{406{,}788{,}840{,}000} = 27{,}468{,}000{,}000$$

$$\triangle^2 = 20{,}400 \times 421{,}776.75888 - 637800 \times 13{,}848.77184$$
$$= 8{,}604{,}245{,}881$$
$$\underline{8{,}832{,}746{,}679} = -\frac{228{,}500{,}798}{27{,}468{,}000{,}000} = -.0083188 \text{ as above.}$$

These results might have been assumed, but it is exceedingly satisfactory to be doubly assured of the identity of the two forms of expression.

And accordingly, from either series of equations (they were, in fact, prepared from both), there may be obtained the values at each age from 10 to 96 of the values of the Curtate $\breve{E}_x$, of which extracts are here given.

Complete table of the value of the Curtate expectation of life.

		$\triangle^1$	$\triangle^2$	
10	50.5676886			
		.9389462		
11	49.6287424		.0083188	
		.9306274		
12	48.6981150		.0083188	
		.9223086		
13	47.7758064		.0083188	$= 845\ \triangle^1 + 5\ \triangle^2$
		.9139898		
14	46.8618166		.0083188	
		.9056710		
15	45.9561456			
*	*			
*	*	8.5991760		$= 1540\ \triangle^1 + 10\ \triangle^2$
*	*			
25	37.3569696		.8318800	$= 100\ \triangle^2 + 10^2\ \triangle^2$
		7.7672960		$= 1340\ \triangle^1 + 10\ \triangle^2$
35	29.5896736		.8318800	
		6.9354160		$= 1140\ \triangle^1 + 10\ \triangle^2$
45	22.6542576		.8318800	
		6.1035360		$= 940\ \triangle^1 + 10\ \triangle^2$
55	16.5507216		.8318800	
		5.2716560		$= 740\ \triangle^1 + 10\ \triangle^2$
65	11.2790656		.8318800	
		4.4397760		$= 540\ \triangle^1 + 10\ \triangle^2$
75	6.8392896		.8318800	
		3.6078960		$= 340\ \triangle^1 + 10\ \triangle^2$
85	3.2313936		.8318800	
		2.7760160		$= 140\ \triangle^1 + 10\ \triangle^2$
95	.4553776			
		50.1123110		$= \overline{7565}\ \triangle^1 + \overline{85}\ \triangle^2$
		.4553776		

Sum = 1768.5423800

Sum of n terms $= n \times 50.5676886 - \frac{n\,(n-1)}{1.2}\triangle^1 + \frac{n.\,(n-1)}{1.2.3}-(n-2)\ \triangle^2$

Total of 87 terms $= 87 \times 50.5676886 - \frac{87.86}{1.2}\triangle^1 + \frac{87.86.85}{1.2.3}\triangle^2 = 1768.5423800$

Another expression $= \left(\frac{87^3}{3} + \frac{87^2}{2} + \frac{87}{6}\right) \times .0041594 + \frac{87.88}{1.2} \times .21937 = \overline{1768.5423800}$

(A) (B)

which summations seem to me to present in a very concentrated form the longevity character of any tables. And seeing that the second differences are constant, we have the following:

$$E_x - 2E_{x+1} + E_{x+2} = \triangle^2 = E_{x+n} - 2E_{x+n+1} + E_{x+n+2}$$

and

$$E_x - 2E_{x+n} \times E_{n\,x\,2\,n} = n^2 \triangle^2$$

$$\triangle^1 E_{10} = (2 + 87 - 1)A + B$$
$$= 173A + B = .9389462$$
$$\underline{\qquad\qquad} .0083188$$
$$\triangle^1 E_{11} = 171A + B = .9306274$$
$$\underline{\qquad\qquad} .0083188$$
$$\triangle^1 E_{12} = 169A + B = .9223086$$
$$\underline{\qquad\qquad} .0083188$$
$$\triangle^1 E_{13} = 167A + B = .9139878$$
$$\triangle^1 E_{55} + \triangle^1 E_{56} + \triangle^1 E_{57} + \triangle^1 E_{58} + \triangle^1 E_{59} + \ldots + \triangle^1 E_{64}$$
$$= 740A + 10B = 5.2716560 \text{ as above.}$$

There are one or two variations upon the foregoing principles which, for minor reasons, might very suitably be inserted at this point, such as the variations upon the values of A and B when $\breve{E}_x$ receives certain increases, and also when the yearly increments of $\breve{E}_x$ are constant during life. They are, however, deferred until after the following more important considerations have been dealt with.

Having carefully computed the values of $\breve{E}_x$ for each age—carrying the results out to seven decimals—the next step proceeded upon the relation between $\breve{E}_x$ and $\breve{E}_{x+1}$ for the purpose of determining the values of p_{n-1} and the formation of the column of L_n. This calculation was based upon the well-known formula of $p_{n|1} = \dfrac{\breve{E}_x}{1 + \breve{E}_{x+1}}$, and was performed by aid of logarithms. The result is the following columns of L_n and d_n, of which a comparison is made with the L_n and d_n of the H^m table, pages 3 and 5 of volume ii. of H^m experience.

Table of mortality deduced from the expectation of life.

AGE	Calculated L_x	H^m L^1_x	Difference $L_x - L^1_x$	$L_x - L_{x+1}$	Tabular $L_x - L_{x+1}$	Difference $d_x - d_x$
10	100,000	100,000	0	121	490	369
11	99,879	99,510	369	139	397	258
12	99,740	99,113	627	159	329	170
13	99,581	98,784	797	179	288	109
14	99,402	98,496	906	199	272	73
15	99,203	98,224	979	222	282	60
16	98,981	97,942	1039	243	318	75
17	98,738	97,624	1114	266	379	113
18	98,472	97,245	1227	289	466	177
19	98,183	96,779	1404	314	556	242
20	97,869	96,223	1646	338	609	271
21	97,531	95,614	1917	364	643	279
22	97,167	94,971	2196	391	650	259
23	96,776	94,321	2455	418	638	220
24	96,358	93,683	2675	446	622	176
25	95,912	93,061	2851	475	617	142
26	95,437	92,444	2993	504	618	114
27	94,933	91,826	3107	535	634	99
28	94,398	91,192	3206	566	654	88
29	93,832	90,538	3294	598	673	75
30	93,234	89,865	3369	632	694	62
31	92,602	89,171	3431	664	706	42
32	91,938	88,465	3473	700	717	17
33	91,238	87,748	3490	735	727	8
34	90,503	87,021	3482	771	740	31
35	89,732	86,281	3451	809	757	52

AGE	Calculated L_x	H^m L^1_x	Difference $L_x - L^1_x$	Difference $L_x - L_{x+1}$	Tabular $L_x - L_{x+1}$	Difference $d_x - d_x$
36	88,923	85,524	3399	846	779	67
37	88,077	84,745	3332	885	802	83
38	87,192	83,943	3249	925	821	104
39	86,267	83,122	3145	965	838	127
40	85,302	82,284	3018	1007	848	159
41	84,295	81,436	2859	1048	854	194
42	83,247	80,582	2665	1091	865	226
43	82,156	79,717	2439	1134	887	247
44	81,022	78,830	2192	1178	911	267
45	79,844	77,919	1925	1222	950	272
46	78,622	76,969	1653	1267	996	271
47	77,355	75,973	1382	1313	1041	272
48	76,042	74,932	1110	1358	1082	276
49	74,684	73,850	834	1405	1124	281
50	73,279	72,726	553	1451	1160	291
51	71,828	71,566	262	1497	1193	304
52	70,331	70,373	42	1543	1235	308
53	68,788	69,138	150	1589	1286	303
54	67,199	67,852	653	1635	1339	296
55	65,564	66,513	949	1681	1399	282
56	63,883	65,114	1231	1725	1462	263
57	62,158	63,652	1494	1769	1527	242
58	60,389	62,125	1736	1812	1592	220
59	58,577	60,533	1956	1854	1667	187
60	56,723	58,866	2143	1894	1747	147
61	54,829	57,119	2290	1932	1830	102
62	52,897	55,289	2392	1968	1915	53
63	50,929	53,374	2445	2002	2001	1
64	48,927	51,373	2446	2033	2076	43
65	46,894	49,297	2403	2061	2141	80
66	44,833	47,156	2323	2086	2196	110
67	42,747	44,960	2213	2107	2243	136
68	40,640	42,717	2077	2124	2274	150
69	38,516	40,443	1927	2134	2319	185
70	36,382	38,124	1742	2142	2371	229
71	34,240	35,753	1513	2143	2433	290
72	32,097	33,320	1223	2138	2497	359
73	29,959	30,823	864	2125	2554	429
74	27,834	28,269	435	2107	2578	471
75	25,727	25,691	36	2081	2527	446
76	23,646	23,164	482	2046	2464	418
77	21,600	20,700	900	2002	2374	372
78	19,598	18,326	1272	1951	2258	307
79	17,647	16,068	1579	1889	2138	249
80	15,758	13,930	1828	1819	2015	196
81	13,939	11,915	2024	1738	1883	145
82	12,201	10,032	2169	1648	1719	71
83	10,553	8,313	2240	1549	1545	4
84	9,004	6,768	2236	1439	1346	93
85	7,565	5,422	2143	1319	1158	181
86	6,246	4,284	1942	1200	941	259
87	5,046	3,343	1703	1069	773	296
88	3,977	2,570	1407	934	615	319
89	3,043	1,955	1188	798	495	303
90	2,245	1,460	785	662	408	254
91	1,583	1,052	531	528	329	199
92	1,055	723	332	404	254	150
93	651	469	182	288	195	93
94	363	274	89	190	139	51
95	173	135	38	108	86	22
96	65	49	16	51	40	11
97	14	9	5	14	9	5

The mortality of the early ages in the H^m may probably represent the facts, but the facts do not seem to me to be of sufficient weight to

have their existence perpetuated in a table. Indeed, the facts under age twenty are exceedingly feeble, and certainly their transfer from an exposure of a few hundreds to a similar proportion out of thousands should not have been permitted—thus three died out of 379 is transposed in the table to 79 deaths out of 10,000, and as none died out of 434, the inference is drawn that none would die of 9,921, or out of any larger number.

A glance at the two forms of the H^m table points out their general features. The form deduced from the Curtate expectation shows much lighter mortality at the younger ages, and heavier mortality after age fifty, a feature which indicates larger values of policies—greatly to be desired. The progressive continuity of the number of deaths up to age seventy-one and thereafter, the lessening continuity is greatly superior to the zigzagishness of the H^m table; and altogether its completeness as a table of mortality seems to me to be greatly superior. Not one of the tables deduced from the most probable values of the constants would by the mode of development through the Curtate expectations and the expression for the probability of living one year, have exhibited those frivolous and paltry deviations from progressive continuity. To justify any one of those petty hitches in the number of deaths it would be necessary to have it proved from several sets of statistics that there certainly existed a climacteric of mortality at certain ages, and that accordingly it seemed necessary to exhibit the same character at these ages in the tables. That there are such climacterics at certain periods of life it is well-known, but they do not appear exactly at one year of life. They may be sufficiently represented by a heavier mortality spread over five or seven ages.

On reflection, it seems to me that the original equations might require a selection or adjustment of some special significance, probably the average of a number—say—the average between

10 and 20, 20 and 30, etc.

When the results at age ten are taken there is weight given to the figures of that age which is spent wholly on one side of ten. Or, perhaps, those at age fifteen should be selected as applicable to the series 10 to 20, as it seems at first glance apparent that the mortality immediately after age ten is on the slight side.

I have also, in combination with a rate of 3 per cent., computed the values of annuities, assurances, and annual premiums, which are contrasted with the corresponding sums according to the H^m table.

I. Values of *Annuities* of £1.

Age	Calculated	H^m	Difference
10	24.584	24.148	+ .436
15	23.400	23.158	+ .242
20	22.155	22.042	+ .113
25	20.851	21.038	— .187
30	19.491	19.867	— .376
35	18.078	18.587	— .509
40	16.618	17.176	— .558
45	15.118	15.593	— .475
50	13.584	13.896	— .312
55	12.026	12.094	— .068
60	10.456	10.236	+ .220

II. Value of *Assurance* of £1 at Death.

10	.25483	.26752	—	.01269
15	.28932	.29637	—	.00705
20	.32558	.32886	—	.00328
25	.36356	.35812	+	.00544
30	.40317	.39221	+	.01096
35	.44402	.42950	+	.01452
40	.48685	.47060	+	.01625
45	.53054	.51669	+	.01385
50	.57522	.56613	+	.00909
55	.62060	.61863	+	.00197
60	.66636	.67274	—	.00638

III. Whole Life *Annual Premiums* for Assurance of £1 at Death.

Age	Calculated	H^m		Difference
10	.009961	.010638	—	.000677
15	.011857	.012268	—	.000411
20	.014061	.014272	—	.000211
25	.016638	.016250	+	.000388
30	.019676	.018795	+	.000881
35	.023292	.021928	+	.001364
40	.027634	.025891	+	.001743
45	.032916	.031138	+	.001778
50	.039442	.038005	+	.001437
55	.047644	.047246	+	.000398
60	.058164	.059874	—	.001710

Although I have at odd times toyed with the principal problem discussed in the foregoing pages, I have not hitherto given it so much continued attention as I would like, but from that little I have felt increasing inclination to give it still further attention, having generally a desire to be familiar with the results of arbitrary variations. I have, however, only had opportunities to make one or two. Sometimes equations involving *three* unknown quantities were tried, but the magnitude of the figures, and the risk of having the calculations upset by some trifling slip, was a stumbling block. I diminished the original (H^m) $\breve{E}_x$ by half-years, and I found the following equations:

$$\breve{E}_x \quad = (97-x)^2 .0041594 + (97-x) .21937$$
$$\breve{E}_x - .5 = (97-x)^2 .0043578 + (97-x) .19756$$
$$\breve{E}_x - 1. \; = (97-x)^2 .0045561 + (97-x) .17575$$
$$\breve{E}_x - 1.5 = (97-x)^2 .0047544 + (97-x) .15394$$

From these results it was evident that it is possible to make other alterations upon the formula without further calculation—for it will be seen that the differences in the constants are equal for each half-year.

	Value of A	Δ A	Value of B	Δ B
$\breve{E}_x - 0.$	= .0041594		.21937	
		+ .0001984		— .02181
$\breve{E}_x - .5$	= .0043578		.19756	
		+ .0001983		— .02181
$\breve{E}_x - 1.$	= .0045561		.17575	
		+ .0001983		— .02181
$\breve{E}_x - 1.5$	= .0047544		.15394	

and accordingly the formula for $\breve{E}_x - \frac{n}{2}$

$$\text{Value of A} = .0041594 + .0001984 \times \frac{n}{2}$$
$$\text{“ B} = .21937 - .02181 \times \frac{n}{2}$$

It may be assumed that each formula attached to the original equations having its own originals of A and B would have their corresponding special differences. Thus I developed the formula for H^f

$$\begin{aligned}
\breve{E}_x{}^x - 0 &= (97-x)^2 \times .0030352 + (97-x) \times .29274 \\
\text{“} - .5 &= (97-x)^2 \times .0032352 + (97-x) \times .27081 \\
\text{“} - 1. &= (97-x)^2 \times .0034353 + (97-x) \times .24887 \\
\text{“} - 1.5 &= (97-x)^2 \times .0036353 + (97-x) \times .22694
\end{aligned}$$

The differences of A being constant at .0002000
“ B “ .02193

Having produced the formulas for males

$$\text{Males} = (97-x)^2 \times 00396 + (97-x) \times .24124$$
$$\text{and for Females} = (97-x)^2 \times 00296 + (97-x) \times .30594$$

the difference between the expectations of males and of females

$$= (97-x)^2 \times .001 - (97-x) \times .06470$$

AGE	By formula	Actual results Males	Females	Difference
10	+ 1.940	50.291	48.195	+ 2.096
20	+ .947	42.061	40.815	+ 1.246
30	+ .054	34.681	34.503	+ .178
40	— .439	27.399	28.253	— .854
50	— .832	20.306	21.616	— 1.310
60	— 1.325	13.830	14.851	— 1.021
70	— 1.018	8.495	9.082	— .587
80	— .811	4.719	5.450	— .731
90	— .403	2.357	3.302	— .945

When it is borne in mind that the formulas of each curve for males and for females embrace the entire length of the curve in one sweep which the original curves do not recognize, the similarity of the results is remarkable.

I toyed with *increments* to the $\breve{E}_x$ only at age ten. Increments of one year, two years, three years, and I found a repetition of the constancy of the constants. Thus:

$$\begin{aligned}
E_x + 0 &= (97-x)^2 \quad 0041594 + (97-x) \times .21937 \\
+ 1 &= (97-x)^2 \quad 0043564 + (97-x) \times .20918 \\
+ 2 &= (97-x)^2 \quad 0045533 + (97-x) \times .19900 \\
+ 3 &= (97-x)^2 \quad 0047503 + (97-x) \times .18881 \\
+ 5 &= (97-x)^2 \quad 0051442 + (97-x) \times .168434
\end{aligned}$$

In this last instance I worked out the results for the entire table. It was ascertained that if the selected lives at age ten were assumed to have an addition of five years added to their Curtate expectation—and unchanged at the other ages, selection would last till age forty-five, after which the results would be less than the original $\breve{E}_x$. The subject became too complicated, and I found that I had to tackle the problem of selection from a different standpoint, to which I hope to refer on a subsequent occasion.

I made another variation. It was assumed that the decrements of $\breve{E}_x$ were equal that is, I assumed that each year's difference between $\breve{E}_x + {}_n$ and $\breve{E}_{x+n-1} = \frac{E_x}{87} = \frac{56.56768860}{87} = .58123771$,

the 56.5676886 being $(97-10)^2 \times 0041594 + (97) - 10) \times .21937$
From the successive values of E_x there was obtained the values of $p_x|_1$ and l_x.

It was instructive to observe the regularity of the increasing number of deaths, which suggested some law of which I was unable to discover the formula. Thus, of the 100,000 deaths

Age	There died in each five years	While the correct number is (9 equations)
10-14	4133.	797
15-19	4204.	1334
20-24	4280.	1957
25-29	4363.	2678
30-34	4454.	3502
35-39	4555.	4430
40-44	4665.	5458
45-49	4791.	6565
50-54	4933.	7715
55-59	5097.	8841
60-64	5289.	9829
65-69	5520.	10512
70-74	5806.	10655
75-79	6175.	9969
80-84	6686.	8193
85-89	7478.	5320
90-94	9076.	2072
95-97 (3 years	8495.	173
	100,000	100,000

and now, finally, I annex the corresponding results obtained under the several formulæ derived from three four, five, etc. . . . seventeen equations already referred to.

Periods of ages	Number of Equations in each Series: 3 Number of deaths	Difference 3-4	4 Number of deaths	Difference 4-5	5 Number of deaths	Difference 5-6	6 Number of deaths	Difference 6-9	9 Number of deaths	Difference 9-17	17 Number of deaths	Original statistics Number of deaths	Graduated results Number of deaths
10-14.....	1218	— 127 =	1091	— 156 =	935	— 31 =	904	— 107 =	797	+ 85 =	882	1940	1776
15-19.....	1743	— 125 =	1618	— 149 =	1469	— 34 =	1435	— 101 =	1334	+ 78 =	1412	1900	2001
20-24.....	2342	— 116 =	2226	— 139 =	2087	— 34 =	2053	— 96 =	1957	+ 70 =	2027	3190	3162
25-29.....	3022	— 105 =	2917	— 121 =	2796	— 34 =	2762	— 84 =	2678	+ 58 =	2736	3100	3196
30-34.....	3787	— 87 =	3700	— 97 =	3603	— 34 =	3569	— 67 =	3502	+ 41 =	3543	3620	3584
35-39.....	4634	— 65 =	4569	— 63 =	4506	— 30 =	4476	— 46 =	4430	+ 18 =	4448	4020	3997
40-44.....	5556	— 34 =	5522	— 21 =	5501	— 28 =	5473	— 15 =	5458	+ 22 =	5480	4300	4365
45-49.....	6534	+ 8 =	6542	+ 25 =	6567	— 21 =	6546	+ 19 =	6565	— 46 =	6519	5190	5193
50-54.....	7536	+ 45 =	7581	+ 88 =	7669	— 14 =	7655	+ 60 =	7715	— 54 =	7661	6120	6213
55-59.....	8501	+ 92 =	8593	+ 148 =	8741	— 3 =	8738	+ 103 =	8841	— 121 =	8720	7640	7647
60-64.....	9343	+ 135 =	9478	+ 200 =	9678	+ 11 =	9689	+ 140 =	9829	— 149 =	9680	9670	9569
65-69.....	9923	+ 168 =	10091	+ 232 =	10323	+ 27 =	10350	+ 162 =	10512	— 160 =	10352	11380	11173
70-74.....	10055	+ 175 =	10230	+ 226 =	10456	+ 41 =	10497	+ 158 =	10655	— 143 =	10512	12460	12433
75-79.....	9506	+ 143 =	9649	+ 158 =	9807	+ 54 =	9861	+ 108 =	9969	— 70 =	9899	11050	11761
80-84.....	8035	+ 64 =	8099	+ 24 =	8123	+ 58 =	8181	+ 12 =	8193	+ 39 =	8232	8510	8508
85-89.....	5549	— 44 =	5505	+ 133 =	5372	+ 47 =	5419	— 99 =	5320	+ 150 =	5470	3910	3962
90-94.....	2454	— 99 =	2355	+ 184 =	2171	+ 23 =	2194	— 122 =	2072	+ 153 =	2225	1350	1325
95-97.....	262	— 28 =	234	+ 38 =	196	+ 2 =	198	— 25 =	173	+ 29 =	202	150	135
	100,000		100,000		100,000		100,000		100,000		100,000	100,000	100,000

It will be observed that, as the number of equations employed in the development of the several series increase, the deaths at the younger ages are fewer, and the deaths at the older ages greater, a character which indicates increasing values of policies. When these tables are combined with interest the annual whole-life premiums for assurance at death vary almost infinitesimally.

RÉSUMÉ.

DU DÉVELOPPEMENT DES TABLES DÉRIVÉES D'UNE EXPRESSION ABRÉGÉE POUR L'EXPECTATIVE CALCULÉE DE SURVIE.

Par James Meikle.

L'objet principal de cet article est de présenter une expression algébrique pour l'expectative de survie. Le développement de tables ne vient que secondairement. L'article part de l'idée que l'expression cherchée doit être une fonction quelconque des années *possibles* de vie, c'est-à-dire, de la différence entre l'âge le plus reculé que l'on puisse atteindre et x, l'âge actuel de la vie. C'est ainsi que dans la table de Carlisle l'âge le plus reculé est 104, dans la table H^n 97; dans la table de Northampton, 86; dans la table 0^n, 102. Après avoir déclaré qu'on a fait plusieurs tentatives pour trouver quelque expression qui incorporerait ces années et s'adapterait à tous les âges, disons à partir de 10 ans, la meilleure s'est trouvée être, en prenant la table de Carlisle,

$$(104 - x)^2 A + (104 - x)B = \breve{e}x$$

et après avoir donné à x plusieurs valeurs équidistantes — décennale, septennale, quinquennale ou autre, les valeurs les plus probables de A et de B ont été déterminées par la méthode des plus petits carrés. C'est ainsi que pour l'expectative d'après les tables suivantes les expressions sont devenues:

Mâles bien portant — Actuaires . $\breve{e}x = (97 - x)^2 \times 0041594 + (97 - x)\,x{:}21937$
Mâles bien portant — Carlisle . . $\breve{e}x = (104 - x)^2 \times 0034511 + (104 - x)\,x{:}198501$
Mâles bien portant — Northampton $\breve{e}x = (86 - x)^2 \times 0020157 + (86 - x)\,x{:}29185$
Mâles bien portant — Américaine $\breve{e}x = (99 - x)^2 \times 0037949 + (99 - x)\,x{:}23978$

Les résultats obtenus par les expressions précédentes n'ont presque jamais différé de ceux obtenus par le calcul plus rigide d'année en année à partir de 10 ans. L'auteur donne une table complète des résultats obtenus avec la table H^n et l'on y voit que ce n'est qu'aux deux âges de 72 et 73 que les deux méthodes de calcul diffèrent par presque exactement une unité.

Voyant que les résultats coïncident de si près, l'auteur a préparé quelques variations et extensions intéressantes. Il a pensé qu'une comparaison pouvait être faite entre les prévoyances de longévité par une totalisation des expectatives à tous les âges. Il donne diverses formules pour ces résultats. Il a obtenu les probabilités de vive d'un an par les relations entre $\breve{e}x$ et $\breve{e}x + 1$; il en a déduit les tables de mortalité et préparé les valeurs de $AxAx$ et πx qui différaient d'une valeur presque insignifiante des résultats obtenus de la manière ordinaire d'après les tables préparées avec plus de travail et de soin. Le système s'est aussi prêté à une simple méthode de graduation parceque les valeurs de $\breve{e}x$ dans l'équation fondamentale peuvent être celles qui sont dérivées des statistiques primitives non-graduées.

KURZE NOTIZ.

ÜBER DIE ENTWICKELUNG VON TABELLEN, DIE AUS EINEM ABGEKÜRZTEN AUSDRUCKE FÜR DIE (BERECHNETE) ZUKÜNFTIGE LEBENS-ERWARTUNG HERGELEITET WURDEN.

Von James Meikle.

Der Hauptzweck dieses Artikels ist der, einen algebraischen Ausdruck für zukünftige Lebens-Erwartung darzustellen. Die Entwickelung von Tabellen kommt an zweiter Stelle.

Der Bericht beginnt mit der Idee, dass der gesuchte Ausdruck eine Funktion der möglichen Lebensjahre sein muss, d. h. der Differenz zwischen dem äussersten erreichbaren Alter und x, dem gegenwärtigen Lebensalter; so ist in den Carlisle-Tabellen das äusserste Alter 104, in den H^n-Tabellen 97, in den Northampton-Tabellen 86, in den 0^n-Tabellen 102. Nachdem constatirt ist, dass viele Versuche gemacht worden sind, um einen Ausdruck zu finden, welcher diese Jahre für jedes Alter passend umfasst, vom 10. Jahre aufwärts wollen wir sagen, ergab es sich, dass folgende Formel unter Anwendung der Carlisle-Tabellen als die beste anerkannt wurde:

$$(104 - x)^2 A + (104 - x)B = \breve{e}x$$

und nachdem man x mehrere parallele Werthe gegeben, — zehnjährig, siebenjährig, fünfjährig u. s. w., — wurden die am meisten wahrscheinlichen Werthe von A und B durch die Methode der kleinsten Quadrate festgestellt.

So erhielt man für die Lebenserwartung nach folgenden Tabellen die nachstehenden Ausdrücke:

Statistisch — männlich — gesund .	$\breve{e}x = (97 - x)^2 \times 0041594 + (97 - x)\,x : 21937$
Carlisle	$\breve{e}x = (104 - x)^2 \times 0034511 + (104 - x)\,x : 198501$
Northampton	$\breve{e}x = (86 - x)^2 \times 0020157 + (86 - x)\,x : 20185$
Amerika	$\breve{e}x = (99 - x)^2 \times 0037949 + (99 - x)\,x : 23978$

Das Ergebnis dieser vorstehenden Ausdrucksweisen differirte kaum jemals von den genaueren Berechnungen um 1 Jahr vom 10. Jahre aufwärts. Eine vollkommene Tabelle der Ergebnisse nach Tabellen H^n wird ausgeführt, welche zeigt, dass nur bei zwei Altern, 72 und 73, die beiden Calculationen um eine beinahe genau gleiche Einheit differieren.

Da die Resultate so nahe übereinstimmten, wurden mehrere interessante Veränderungen und Ausdehnungen vorgenommen. Man nahm an, dass ein Vergleich zwischen der Lebensdauer entworfen, in verschiedenen Tabellen deutlich dargestellt werden konnte durch eine Summierung der Lebenserwartungen in jedem Alter. Diverse Formeln werden für diese Ergebnisse vorgelegt.

Von der Beziehung zwischen $\breve{e}x$ und $\breve{e}x + 1$ erlangte man die Wahrscheinlichkeit ein Jahr zu leben, und die Sterblichkeitstabellen wurden davon hergeleitet, wie auch die Werke von $AxAx$ und π^x, welche nur in geringem Masze von den auf gewöhnlichem Wege und von den durch sorgfältiger ausgearbeitete Tabellen erhaltenen Resultaten abweichen. Dieses System konnte auch für eine einfache Methode von Graduierung verwendet werden, da die Werthe von $\breve{e}_x$ in den Grund-Gleichungen von den originalen ungraduierten Statistics entnommen sein mochten.

THEORIE DER LEIBRENTEN MIT RÜCKVERGÜTUNG DER BAREINLAGEN ABZÜGLICH DER BEREITS BEZOGENEN RENTEN.

Von Carl Dizler (Stuttgart),
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Einleitung.

Bei der Versicherungsform, welcher wir hier näher treten wollen, übernimmt die Gesellschaft die Verpflichtung, neben einer lebenslänglichen Rente im Falle des Todes einen Abfertigungsbetrag zu bezahlen, welcher aus dem positiven Überschuss der baren Einlage über die Summe der Rentenbezüge besteht. Die Rückvergütung ist somit abnehmend und hört nach einer gewissen Reihe von Jahren ganz auf. Sie ist so berechnet, dass der Versicherte und seine Erben an Renten samt Rückgewähr mindestens die bare Einlage zurückerhalten. Für die Gesellschaften findet eine allmähliche Umwandlung eines reinen Zinsengeschäftes in ein Versicherungsgeschäft statt. Demgemäss sind die Einnahmen an Heimfällen Gestorbener aber auch die Ausgaben an rechnungsmässigen Zuweisungen zum Deckungscapital der Lebenden in den ersten Versicherungsjahren verhältnissmässig gering. Das Risico wird erst namhaft zu einer Zeit, wo die Wirkung der Selbstauswahl sich nicht mehr geltend macht.

Der Grund für die Wahl des Gegenstandes der Abhandlung liegt in einer sich darbietenden technischen Eigenthümlichkeit desselben. Entwickelt man nämlich die Rentenwerte, so enthalten die Schlussformeln noch eine unbekannte Grösse n, welche die Dauer der Rückvergütung bedeutet. Sie sind von der Form $y = \psi(n)$, also unbestimmt und daher nicht lösbar. Die Zahl der möglichen Lösungen ist zunächst unendlich gross. Sie beschränkt sich indessen wesentlich durch die Überlegung, dass der Werth n nur eine positive ganze Zahl innerhalb gewisser Grenzen sein kann. Des weiteren lassen sich gemäss der Definition der Rückvergütung zwei Rentensummen $\chi_1(n)$ und $\chi_2(n)$ herstellen, welche bei richtig gewählter Versicherungsdauer n die Einlage $M(n)$ einschliessen. Hierdurch gelingt es, die anscheinend unlösbare Aufgabe in eindeutiger Weise zu bestimmen. Die gesuchten Rentenwerthe stellen sich demgemäss stets dar als ein System einer Gleichung mit der zugehörigen Nebenbedingung. Sie sind von der Form

$$\left\{\begin{array}{c} y = \psi(n) \\ \chi_1(n) \leqq M(n) < \chi_2(n) \end{array}\right\} \begin{array}{l} \text{Grundgleichung.} \\ \text{Nebenbedingung.} \end{array}$$

In der Regel wird der zu bestimmende Rentenwerth $\psi(n)$ zugleich der von der Ungleichung eingeschlossene Einlagebetrag $M(n)$ sein. Doch kommt es auch vor, dass $\psi(n)$ and $M(n)$ von einander verschieden sind. Dies ist namentlich der Fall, wenn $M(n)$ ein gegebener constanter Werth ist.

Bezeichnungsweise.

Alter.

a = Eintrittsalter.
x = Versicherungsdauer.
n = Dauer der Rückvergütung.

Verzinsung.

i = Wirklicher Zinsfuss. Ganzjähriger am Ende des Jahres fälliger Zins des Kapitales 1.
$r = 1 + i$ = Aufzinsungsfactor.
$v = \frac{1}{r}$ = Abzinsungsfactor.

Sterblichkeitszahlen.

l_a = Zahl der Lebenden im Alter von a Jahren nach der Sterbetafel.
$d_a = l_a - l_{a+1}$ = Zahl der Sterbfälle zwischen den Jahren a und $a+1$.

Discontirte Zahlen.

$D_a = l_a \cdot v^a$ = Discontirte Zahl der Lebenden im Alter von a Jahren.

$\Sigma D_a = D_a + D_{a+1} + D_{a+2} + \cdots\cdots$ = Summe derselben.

$${}^{a+n-1}\Sigma D_a = D_a + D_{a+1} + D_{a+2} + \cdots + D_{a+n-1} = \Sigma D_a - \Sigma D_{a+n} = \text{Abgekürzte Summe}$$

$$\Sigma\Sigma D_a = \Sigma D_a + \Sigma D_{a+1} + \Sigma D_{a+2} + \cdots\cdots = 1.D_a + 2.D_{a+1} + 3.D_{a+2} + \cdots\cdots = \text{Summe der Summe.}$$

$${}^{a+n-1}\Sigma\Sigma D_a = 1.D_a + 2.D_{a+1} + 3.D_{a+2} + \cdots + n.D_{a+n-1} = \Sigma\Sigma D_a - \Sigma\Sigma D_{a+n} - n.\Sigma D_{a+n} = \text{Abgekürzte Doppelsumme.}$$

$C_a = d_a \cdot v^{a+1}$ = Discontirte Zahl der Todten im Alter von a Jahren. Summation analog.

Specifische Hilfswerthe.

$${}^{a+n-1}G_a = \frac{{}^{a+n-1}\Sigma C_a}{D_a} = \frac{C_a + C_{a+1} + C_{a+2} + \cdots\cdots + C_{a+n-1}}{D_a} = G(n)$$

$${}^{a+n-1}H_a = \frac{{}^{a+n-1}\Sigma\Sigma C_a}{D_a} = \frac{1.C_a + 2.C_{a+1} + 3.C_{a+2} + \ldots + n.C_{a+n-1}}{D_a} = H(n)$$

Rentenwerthe.

$R_a = \frac{\Sigma D_a}{D_a}$ = Einlage für die ganzjährige Leibrente 1 ohne Rückvergütung, vorschussweise zahlbar.

$A_a^{(a)}$ = Desgleichen nachschussweise zahlbar mit Rente (a) im Sterbjahr.

$M_a^{(a)}$ = Desgleichen mit Rückvergütung.

${}^m_m M_a^{(a)}$ = Desgleichen, wenn die Rente in m gleichen Theilen in Höhe von je $\frac{1}{m}$ zahlbar ist.

$\mathfrak{M}_a^{(a)}$ = Ganzjährige Rente mit Rückvergütung einschliesslich Verwaltungszuschlag.

V_{a+x} = Prämienreserve einer mit a Jahren beitretenden Person nach x Jahren.

Die übrigen Zeichen sind aus dem Zusammenhange zu verstehen.

1. Kapitel.

Einlagen für nachschussweise zahlbare Renten mit Rückvergütung bei verschiedener Art der Rentenleistung im Sterbjahr.

§ 1. *Einlage bei voller Sterbjahrsrente, zahlbar am wiederkehrenden Versicherungstage.*

Die gesuchte Einlage $M_a^{(1)}$ besteht aus zwei Theilen, nämlich aus der Einlage $A_a^{(1)}$ für die Leibrente 1 ohne Rückvergütung und aus dem Zusatze $B_a^{(1)}$ für die Gewährung einer Rückvergütung.

Nun ist bekanntlich $A_a^{(1)} = \frac{1}{r} R_a$.

Die Rückvergütung erfolgt jeweils am wiederkehrenden Versicherungstage, und zwar erstmals nach einem Jahre, letztmals nach n Jahren. Hiebei ist n so zu wählen, dass die Summe der bezogenen Renten $n \cdot 1$ gleich der Einlage $M_a^{(1)}$ oder kleiner als dieselbe ist, während im darauf folgenden Jahre die Rentensumme $(n+1) \cdot 1$ den Einlagebetrag übersteigt. Es muss also gelten $n \leqq M_a^{(1)} < n+1$. Vergütet wird nach x Jahren $(1 \leqq x \leqq n)$ für den einzelnen Sterbfall $M_a^{(1)} - x$ und im ganzen für die im Laufe des Jahres nach der Tafel Gestorbenen $\left(M_a^{(1)} - x\right) d_{a+x-1}$. Der auf den Beitretenden entfallende Jetztwerth dieser Anzahlung ist $\frac{1}{l_a}\left(M_a^{(1)} - x\right) v^x d_{a+x-1}$. Nach Einführung der discontirten Zahlen und einigen geeigneten Umformungen ergibt sich

$$B_a^{(1)} = \frac{C_a + C_{a+1} + \cdots\cdots + C_{a+n-1}}{D_a} \cdot M_a^{(1)} - \frac{1.C_a + 2.C_{a+1} + \cdots\cdots + n.C_{a+n-1}}{D_a}$$

$$= {}^{a+n-1}G_a \cdot M_a^{(1)} - {}^{a+n-1}H_a$$

Da $M_a^{(1)} = A_a^{(1)} + B_a^{(1)}$ ist, so erhalten wir als Gleichung der Einlage nebst n-Bedingung

$$(1) \qquad \left\{ \begin{array}{l} M_a^{(1)} = \dfrac{\frac{1}{r} \cdot R_a - {}^{a+n-1}H_a}{1 - {}^{a+n-1}G_a} \\ \text{wobei } n \leqq M_a^{(1)} < n+1 \end{array} \right\}$$

§ 2. *Desgleichen ohne Rentenleistung im Sterbjahr.*

$$(2) \qquad \left\{ \begin{array}{l} M_a^{(0)} = \dfrac{R_a - 1 + {}^{a+n-1}G_a - {}^{a+n-1}H_a}{1 - {}^{a+n-1}G_a} \\ \text{für } n-1 \leqq M_a^{(0)} < n \end{array} \right\}$$

§ 3. *Desgleichen mit Rate im Sterbjahr, welche bis zum Todestage proportional der durchlebten Zeit berechnet und am Rentenauszahlungstermin fällig ist.*

$$(3) \qquad \left\{ \begin{array}{l} M_a^{(\frac{1}{2})} = \dfrac{\frac{r+1}{2r} \cdot R_a - \frac{1}{2} + \frac{1}{2} \cdot {}^{a+n-1}G_a - {}^{a+n-1}H_a}{1 - {}^{a+n-1}G_a} \\ \text{wobei } n - \frac{1}{2} \leqq M_a^{(\frac{1}{2})} < n + \frac{1}{2} \end{array} \right\}$$

§ 4. *Grundform der nachschussweise zahlbaren Rente mit Rückvergütung.*

Bezeichnen wir die Rentenzahlung im Sterbjahr mit α, wobei α ein positiver echter Bruch ist ($\alpha = 1$; $\alpha = 0$; $\alpha = \frac{1}{2}$), lassen wir ferner die Altersbezeichnung a und $a + n - 1$ der Kürze halber weg und drücken wir M, G und H in Function von n aus, so ist allgemein

$$(4) \qquad \left\{ \begin{array}{l} M_{(n)}^{(\alpha)} = \dfrac{f_{(r)}^{(\alpha)} \cdot R - (1-\alpha) + (1-\alpha) \cdot G(n) - H(n)}{1 - G(n)} \\ \text{mit der Bedingung: } n - 1 + \alpha \leqq M_{(n)}^{(\alpha)} < n + \alpha \end{array} \right\}$$

Dabei ist $f_{(r)}^{(\alpha)} = \dfrac{r - (r-1)\alpha}{r}$

2. Kapitel.

Das Grundproblem der Rückvergütung.

§ 5. *Die Gleichung der Einlage und die n-Bedingungen. System einer Gleichung und einer Ungleichung.*

Die gefundenen Einlagewerthe haben durchweg die Eigenthümlichkeit, dass sie noch eine unbekannte Grösse n enthalten. Die Gleichung der Einlage ist von der Form $M = \psi(n)$, also unbestimmt und zunächst nicht lösbar. Für jeden beliebigen Werth von n erhält man bei ein und demselben Eintrittsalter a einen anderen Einlagewerth M.

Die Zahl der möglichen Annahmen für n ist indessen nicht so gross, als es den Anschein hat. Der Werth n bedeutet die Anzahl der vollen rückvergütungsberechtigten Jahre, ist also eine positive ganze Zahl. Ferner muss die Einlage M und demgemäss auch die Rückvergütungsdauer n grösser sein als die Einlage A der entsprechenden Leibrente ohne Rückvergütung und kleiner als der Jetztwerth der ähnlich gebauten ewigen Rente.

Immerhin erhält man für jedes Beitrittsalter a anstatt eines einzigen Einlagewerthes M deren mehrere M_1, M_2, M_3, ... und es handelt sich nun um die Frage, welcher der richtige ist. Den Entscheid hierüber liefern die n-Bedingungen, die sich aus der Definition der Rückvergütung ergeben. Dieselben stellen zwei Rentensummen dar, zwischen denen der gesuchte Einlagewerth liegen muss. Durch die n-Bedingungen wird aus der Zahl der fertigen Resultate stets ein und nur ein Werth als richtig ausgeschieden, der zugleich ein Maximalwerth ist. Ihrem Wesen nach hängen die n-Bedingungen von der Art und Weise der Auszahlung ab; sie sind also für die verschiedenen Versicherungsarten verschieden.

Um eindeutig bestimmte Einlagewerthe zu erhalten, bedarf man daher eines Systems, das aus der Gleichung der Einlage und der zugehörigen n-Bedingung besteht. Dieses System einer Gleichung und einer Ungleichung stellt sich für ganzjährige nachschüssige Renten dar wie folgt:

$$\left\{ \begin{array}{l} M^{(\alpha)} = \psi(n) \\ n - 1 + \alpha \leqq M^{(\alpha)} < n + \alpha \end{array} \right\}$$

§ 6. *Beispielsweise Berechnung von Einlagen mit Hilfe der n-Bedingungen.*

Bei der Anfertigung von Tarifsätzen ist es von erheblichem Vortheil, die Hilfswerthe G und H soweit erforderlich im Voraus herzustellen. Man beginnt die Rechnung geeigneter Weise beim höchsten Eintrittsalter. Wir wollen hiebei die Formel (1), die Stuttgarter Rentnertafel vom Jahre 1855 bei $3\frac{1}{2}\,\%$ Zins sowie das Alter $a = 70$ Jahre der Rechnung zu Grunde legen. Alsdann ist $\frac{1}{r} \cdot R_{70} = 8{,}89$; demgemäss setzen wir $n = 9$; $n = 10$ u. s. w.

$a = 70$	$n = 9$ $a+n-1=78$	$n = 10$ $a+n-1=79$	$n = 11$ $a+n-1=80$	$n = 12$ $a+n-1=81$	$n = 13$ $a+n-1=82$
1) $A_{70}^{(1)} = \frac{1}{r} \cdot R_{70}$	8,893684	8,893684	8,893684	8,893684	8,893684
2) ${}^{a+n-1}H_{70}$	1,642810	1,987854	2,363976	2,768726	3,197427
3) $A_{70}^{(1)} - {}^{a+n-1}H_{70}$	7,250874	6,905830	6,529708	6,124958	5,696257
4) ${}^{a+n-1}G_{70}$	0,338765	0,373270	0,407463	0,441192	0,474169
5) $1 - {}^{a+n-1}G_{70}$	0,661235	0,626730	0,592537	0,558808	0,525831
6) $\frac{A_{70}^{(1)} - {}^{a+n-1}H_{70}}{1 - {}^{a+n-1}G_{70}}$	$\frac{7{,}250874}{0{,}661235}$	$\frac{6{,}905830}{0{,}626730}$	$\frac{6{,}529708}{0{,}592537}$	$\frac{6{,}124958}{0{,}558808}$	$\frac{5{,}696257}{0{,}525831}$
7) $M_{70}^{(1)}$	10,96 57	11,01 88	11,01 99	10,96 08	10,83 29
8) n-Bedingungen	$9 \leqq 10{,}96 < 10$	$10 \leqq 11{,}01 < 11$	$11 \leqq 11{,}01 < 12$	$12 \leqq 10{,}96 < 13$	$13 \leqq 10{,}83 < 14$
9) Entscheid	stimmt nicht	stimmt nicht	stimmt	stimmt nicht	stimmt nicht

Aus vorstehender Berechnung geht hervor, dass für $n = 11$ und demgemäss $M_{70}^{(1)} = 11{,}0199$ und nur für diesen Werth die Einlage der Bedingung $n \leqq M_{70}^{(1)} < n + 1$ genügt.

Unter der Annahme $n = 11$ hat man somit nach wenigen Versuchen den Tarifsatz für das Eintrittsalter $a = 70$ erhalten. Für das vorhergehende Alter $a = 69$ ist nun n entweder der gleiche Werth oder um 1 grösser. Bei zusammenhängender Tarifrechnung erhält man das richtige n fast immer auf den ersten Wurf.

§ 7. *Gesetz. Der den n-Bedingungen genügende Einlagewerth ist ein Maximalwerth.*

Es möge ein Einlagewerth $M_{(n_1)}^{(a)}$ oder kurz $M(n_1)$ gegeben sein, welcher der zugehörigen n-Bedingung: $n_1 - 1 + a \leqq M(n_1) < n_1 + a$ genügt. Nunmehr ist zu beweisen, dass dieser Werth $M(n_1)$ grösser ist als die beiden Nachbarwerthe $M(n_1 + 1)$ und $M(n_1 - 1)$.

Wir machen zu diesem Zwecke folgende Umformungen:

$$M(n_1) = \frac{f(r) \cdot R - (1-a) + (1-a) \cdot G(n_1) - H(n_1)}{1 - G(n_1)} = \frac{a}{b} \text{ zur Abkürzung}$$

$$M(n_1+1) = \frac{a + (1-a) \cdot J(n_1+1) - (n_1+1) \cdot J(n_1+1)}{b - J(n_1+1)} \quad \text{wo } J(n_1+1) = \frac{Ca + n_1}{Da} \text{ ist.}$$

$$M(n_1-1) = \frac{a - (1-a) \cdot J(n_1) + n_1 \cdot J(n_1)}{b + J(n_1)} \quad \text{wo } J(n_1) = \frac{Ca + n_1 - 1}{Da} \text{ ist.}$$

Hieraus folgt:

$$M(n_1) - M(n_1+1) = \frac{(n_1+\alpha) - M(n_1)}{b - I(n_1+1)} \cdot J(n_1+1) = \frac{(n_1+\alpha) - M(n_1)}{1 - G(n_1+1)} \cdot J(n_1+1)$$

$$M(n_1) - M(n_1-1) = \frac{M(n_1) - (n_1-1+\alpha)}{b + J(n_1)} \cdot J(n_1) = \frac{M(n_1) - (n_1-1+\alpha)}{1 - G(n_1-1)} \cdot J(n_1)$$

Soll nun $M(n_1)$ ein Maximum sein, so müssen die vorstehenden Differenzen positiv sein. Dies is thatsächlich der Fall. Die Zähler der Brüche rechts sind positiv nach der Voraussetzung. Die Nenner sind gleichfalls positiv; denn $l_\alpha = \Sigma d_\alpha > d_\alpha v + d_{\alpha+1} v^2 + d_{\alpha+2} v^3 + \ldots\ldots$ Also ist $D_\alpha > \Sigma C_\alpha > > ^{\alpha+x} \Sigma C_\alpha$. Nach Division mit D_α folgt daraus $1 > G(x)$. Ebenso ist $J(n_1+1)$ und $J(n_1)$ positiv.

In gleicher Weise kann festgestellt werden, dass $M(n_1) - M(n_1 \pm x) > 0$ ist.

Dass der die n-Bedingungen erfüllende Einlagewerth ein Maximalwerth ist, erhellt auch aus folgender Überlegung. Wird n zu nieder angenommen, so kommen die letzten rückvergütungsberechtigten Jahre in Wegfall. Man hat also verminderte Auszahlung und demgemäss kleinere Einlage. Ist n zu hoch eingeschätzt, so wird die Rückvergütung späterhin negativ. Dies bedeutet, dass die Anstalt sich im Todesfalle die den Einlagebetrag übersteigende Summe an ausbezahlten Renten zurückerstatten lässt. Durch diese eventuelle Nachzahlung vermindert sich die ursprüngliche Einlage ebenfalls. Den höchsten Einlagewerth erhalten wir, wenn n weder zu hoch noch zu nieder, sondern den n-Bedingungen gemäss richtig gewählt ist.

§ 8. *Eindeutige Bestimmung der Einlage durch die n-Bedingungen.*

Macht man für n verschiedene Annahmen $n_1, n_2, n_3 \ldots\ldots$ und erhält man demgemäss die Resultate $M_1, M_2, M_3 \ldots\ldots$, so ist unter letzteren *mindestens eines*, das den zugehörigen n-Bedingungen genügt. Wir benützen zunächst die positive ganze Zahl n_1 und finden, dass dieselbe zu nieder ist, dass also M_1 grösser ist als die obere Bedingungsgrenze. Gegeben ist mithin $M_1 > n_1 + \alpha$. Sodann gehen wir zum folgenden Werth $n_2 = n_1 + 1$ über und ermitteln die entsprechende Einlage M_2. Nunmehr ist zu beweisen, dass M_2 unmöglich unterhalb der unteren zugehörigen Bedingungsgrenze liegen kann, dass vielmehr $M_2 > n_2 - 1 + \alpha$. Glückt der Beweis, so wissen wir, dass der richtige Werth nicht sozusagen durch die Maschen schlüpfen kann, sondern dass mindestens *eine* Lösung möglich ist. Wir benützen hiebei die Relationen von § 7.

Gegeben ist

$$M_1 = \frac{f \cdot R - (1-\alpha) + (1-\alpha) \cdot G(n_1) - H(n_1)}{1 - G(n_1)} > n_1 + \alpha$$

Daraus folgt

$$f \cdot R - (1-\alpha) + (1-\alpha) \cdot G(n_1) - H(n_1) > (n_1+\alpha)\big(1 - G(n_1)\big)$$

$$f \cdot R - (1-\alpha) + (1-\alpha) \cdot G(n_1) + (1-\alpha) J(n_1+1) - H(n_1) - (n_1+1) J(n_1+1) > (n_1+\alpha) \cdot \big(1 - G(n_1) - J(n_1+1)\big)$$

$$f \cdot R - (1-\alpha) + (1-\alpha) \cdot G(n_2) - H(n_2) > (n_2 - 1 + \alpha)\big(1 - G(n_2)\big)$$

und somit

$$M_2 = \frac{f \cdot R - (1-\alpha) + (1-\alpha) \cdot G(n_2) - H(n_2)}{1 - G(n_2)} > n_2 - 1 + \alpha$$

was zu beweisen war.

Sodann ist noch zu beweisen, dass *nur eine* Lösung möglich ist. Haben wir einen richtigen Einlagewerth M_2 gefunden, der den Bedingungen $n_2 - 1 + a \leqq M_2 < n_2 + a$ entspricht, so ist festzustellen, dass einerseits der vorhergehende Werth M_1 grösser ist als die obere und andererseits der folgende Werth M_3 kleiner als die untere zugehörige Bedingungsgrenze. Es muss also $M_1 > n_1 + a$ und $M_3 < n_3 - 1 + a$ sein. Das erstere ergibt sich, wenn wir den vorstehenden Beweis rückwärts machen. Ist gegeben $M_2 > n_2 - 1 + a$, so folgt daraus, dass $M_1 > n_1 + a$. Sodann ergibt sich aus dem Maximalgesetz $M_3 < M_2 < n_2 + a = n_3 - 1 + a$; also $M_3 << n_3 - 1 + a$. Ebenso geschieht der Beweis mit entfernteren Werthen von n und M. Es gibt nur *einen* Werth von M, der die n-Bedingungen erfüllt; alle anderen liegen ausserhalb der Bedingungsgrenzen.

§ 9. *Graphische Darstellung der Einlage $M(n)$ samt zugehörigen n-Bedingungen.*

Die Gleichung der Einlage $y = M(n)$ stellt sich graphisch dar als Curve in der Ebene, und die zur Auswahl vorliegenden Resultate M_1, M_2, M_3 ..... sind äquidistante Punkte auf dieser Curve. Die n-Bedingungen erscheinen als zwei diagonale Gerade, welche einen von diesen Punkten und zwar den höchstgelegenen eindeutig ausscheiden. Die Ordinate $M(n)$ dieses Punktes ist die gesuchte Einlage und seine Abscisse n die zugehörige Rückvergütungsdauer.

Wäre n eine beliebige Grösse, so hätten wir geometrisch die Bestimmung eines Punktes in der Ebene als Schnittpunkt zweier Curven. Da n aber nur eine positive ganze Zahl sein kann, so tritt an die Stelle der einen Curve ein Gebilde, das weniger ist als eine Curve, nämlich eine Anzahl aufeinander folgender Punkte. Zur Absonderung eines dieser Punkte genügt nun eine zweite die Punktreihe schneidende Curve nicht mehr. Man braucht hiezu ein Gebilde, das mehr ist als eine Curve, nämlich einen von zwei Curven begrenzten Flächenstreifen. Dieser Flächenstreifen ist der von den n-Bedingungen umgrenzte Richtigkeitsbereich.

Zur Darstellung möge das in § 6 gerechnete Beispiel gelangen. Coordinatensystem rechtwinklig. Figur im I. Quadranten.

3. Kapitel.

Deckungscapitalien. Heimfallbeträge. Mortalitätsquote.

§ 10. *Deckungscapital oder Prämienreserve.*

Das Deckungscapital oder Guthaben einer mit a Jahren eintretenden Person beträgt nach x Jahren unter der Voraussetzung, dass die mit $a + x$ Jahren fälligen Leistungen der Gesellschaft bereits gemacht sind:

$$(5)\quad V^{(a)}_{a+x} = f^{(a)}_{(r)} \cdot R_{a+x} - (1-a) + {}^{a+n-1}G_{a+x} \cdot (M^{(a)}_{a} - x + 1 - a) - {}^{a+n-1}H_{a+x} \qquad \text{für } x < n$$

$$(5a)\quad V^{(a)}_{a+x} = f^{(a)}_{(r)} \cdot R_{a+x} - (1-a) \qquad \text{für } x \geqq n$$

Dabei ist n eine bei Feststellung der Einlage gefundene, x eine beliebige positive ganze Zahl.

§ 11. *Beträge unter Jahresrisico oder Heimfallbeträge.*

Darunter sollen diejenigen am Anfange eines Jahres vorhandenen und auf diesen Zeitpunkt berechneten Beträge verstanden werden, welche im Laufe desselben unter Risico stehen und bei etwaigem Ableben des Versicherten der Gesellschaft zufallen.

$$(6)\quad {}^{h}Q^{(\alpha)}_{a+x} = \left[V^{(\alpha)}_{a+x+1} + (1-\alpha) - (M^{(\alpha)}_{a} - x - \alpha) \right] v \qquad \text{für } x < n$$

$$(6a)\quad {}^{h}Q^{(\alpha)}_{a+x} = \left[V^{(\alpha)}_{a+x+1} + (1-\alpha) \right] v \qquad \text{für } x \gtreqless n$$

§ 12. *Mortalitätsquote oder jährlicher rechnungsmässiger Erbtheil der Lebenden an den Todten.*

Unter Mortalitätsquote mögen diejenigen Beträge verstanden werden, welche alljährlich dem Deckungscapital der Lebenden als rechnungsmässige Erbschaft aus den Heimfällen der Gestorbenen zuzuschiessen sind. Die Mortalitätsquote ist das Gegenstück der Risicoprämie bei den Todesfallversicherungen; der Unterschied liegt in den Beziehungen und in der Rentabilität. Man erhält die Mortalitätsquote, indem man den unter Jahresrisico stehenden Betrag mit der Sterbenswahrscheinlichkeit des betreffenden Alters multiplicirt.

$$(7)\qquad {}^{m}Q^{(\alpha)}_{a+x} = {}^{h}Q^{(\alpha)}_{a+x} \cdot \frac{d_{a+x}}{l_{a+x}}$$

§ 13. *Beispiel von Deckungscapitalien, Heimfallbeträgen und Mortalitätsquoten.*

Eintrittsalter: 70 Jahre. Jahresrente 100 Mark. Volle Sterbjahrsrente. Stuttgarter Tafel bei $3\frac{1}{2}\%$ Zins.

Alter	Prämienreserve oder Deckungscapital		Beträge unter Jahresrisico oder Heimfallbeträge		Jährlicher Zuschuss zum Deckungscap. oder Mortalitätsquote		Procentuales Verhältniss der Mortal.-Quote mit Rückv. zur Mort.-Quote ohne Rückv.
	ohne Rückv.	mit Rückv.	ohne Rückv.	mit Rückv.	ohne Rückv.	mit Rückv.	
Jahre	Mark Pfg.	Mark Pfg.	Mark Pfg.	Mark Pfg.	Mark Pfg.	Mark Pfg.	%
70	889.36	1101.99	828.71	38.96	35.97	1.69	4,7%
71	857.72	1042.31	797.07	77.71	35.97	3.51	9,7%
72	824.97	982.42	764.45	116.43	36.10	5.50	15,2%
73	791.21	922.49	731.18	155.40	36.58	7.77	21,3%
74	756.77	862.83	697.42	195.—	37.27	10.42	28,0%
75	721.83	803.81	663.55	235.70	38.06	13.52	35,5%
76	686.47	745.94	628.72	278.12	38.87	17.19	44,2%
77	650.73	689.84	593.97	323.13	39.86	21.68	54,4%
78	614.76	636.43	559.28	372.02	41.14	27.36	66,5%
79	578.85	587.03	524.96	426.58	42.72	34.71	81,3%
80	543.33	543.50	491.35	489.43	44.64	44.47	99,6%
81	508.55	508.55	458.73	458.73	46.80	46.80	100%
82	474.79	474.79	427.29	427.29	49.13	49.13	100%
83	u. s. w.	u. s. w.	u. s. w.	u. s. w.	u. s. w.	u. s. w.	u. s. w.

4. Kapitel.

Einlagen für terminweise zahlbare Renten.

§ 14. *Grundformel für terminweise zahlbare nachschüssige Renten* ohne *Rückvergütung.*

Es ist auf die Höhe der Einlage von wesentlichem Einfluss, ob die Rente ganzjährig in *einem* Betrage oder in unterjährigen gleichen Theilbeträgen zur Auszahlung gelangt. Bei terminweisem Bezuge findet je nach der Versicherungsform eine Vermehrung oder Verminderung der Leistung der Gesellschaft sowohl an Zinsen wie an Sterbjahrsrenten statt und demgemäss erhält man grössere oder kleinere Einlagewerthe als bei ganzjähriger Rentenzahlung.

Die Sterbetafeln pflegen die Zahl der Lebenden meist nur in vollen Jahren anzugeben. Will man das Ableben in kürzeren Zeittheilen wissen, so muss man eine Annahme machen. Als solche empfiehlt sich die des gleichmässigen Ablebens im Laufe des Jahres. Auf Grund dieser Hypothese lassen sich die Einlagen für terminweise nachschüssige Renten entwickeln und sodann auf bereits bekannte fundamentale Werthe zurückführen, so besonders auf die vorschüssige ganzjährige Rente R, die vorschüssige terminweise Rente $\overset{m}{{}_m}R$ und die zugehörige ganzjährige Rente A, die unter Umständen auch nachschüssig sein kann.

Tritt somit an die Stelle der jährlichen Rente 1 eine in m gleichen unterjährigen Terminen zahlbare Rente in Höhe von je $\frac{1}{m}$, so haben wir für die Einlage $\overset{m}{{}_m}A$:

$$\overset{m}{{}_m}A = F(R) \qquad \overset{m}{{}_m}A = F(\overset{m}{{}_m}R) \qquad \overset{m}{{}_m}A = F(A)$$

Jede dieser Functionen lässt sich weiter entwickeln. Legen wir unserer Betrachtung die erste derselben zu Grunde, so finden wir, dass die terminliche nachschüssige Rente durch elementare Entwicklung auf die Form gebracht werden kann

$$(8) \quad \overset{m}{{}_m}A^{(a)} = f^{(a)}_{(m,\,r)} \cdot R - \phi^{(a)}_{(m,\,r)}$$

Dabei wird durch a angezeigt, welche Zahlung im Sterbe*termin* (nicht Sterbjahr, sondern Sterbhalbjahr, Sterbquartal, Sterbmonat u. s. w.) an letzter Rente zu leisten ist.

§ 15. *Betrachtung des Factors $f^{(a)}_{(m,\,r)}$ bei der Grundformel für terminweisen Rentenbezug.*

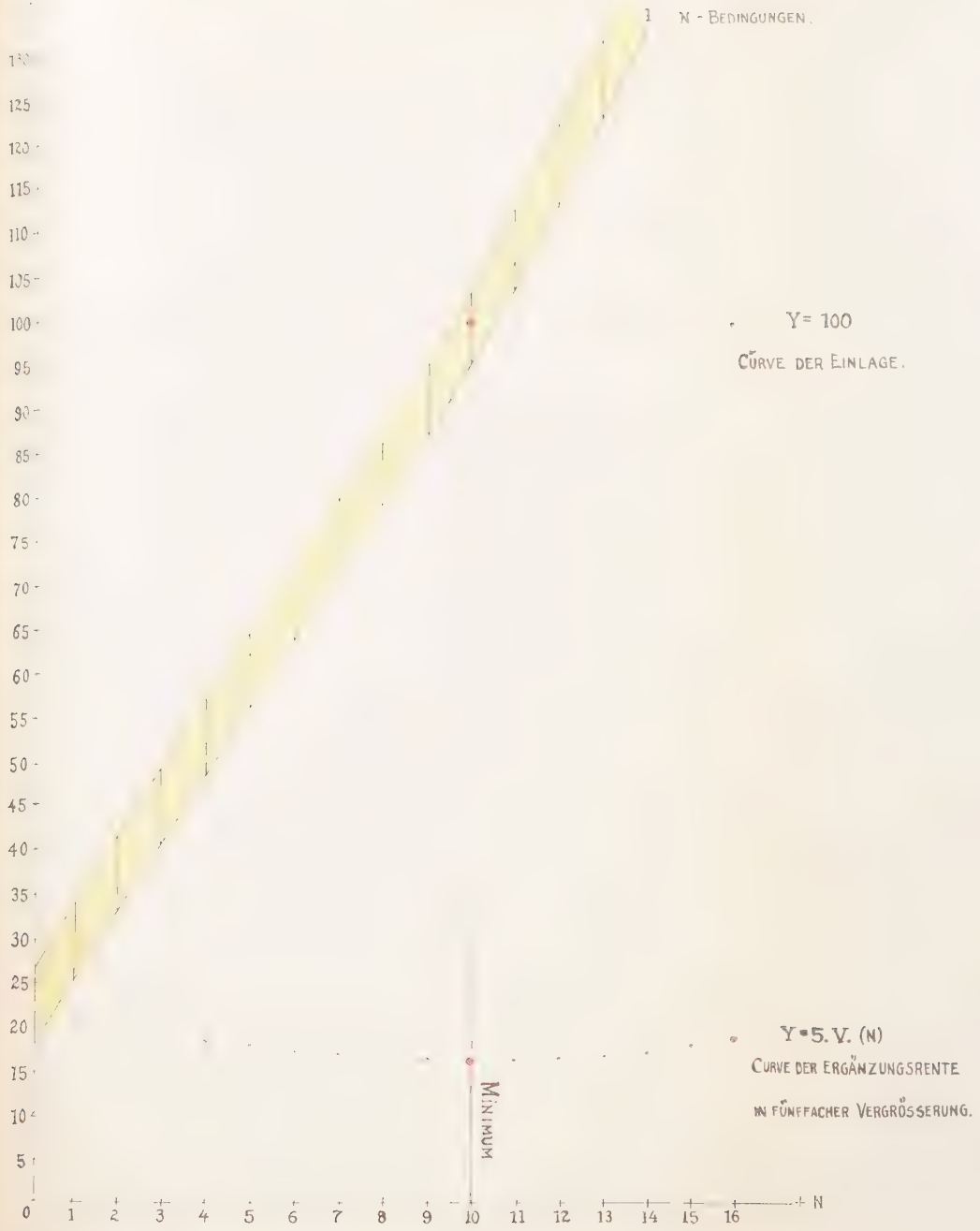
Die geschlossene Form des Factors $f^{(a)}_{(m,\,r)}$ lautet für $a = 1$, $a = 0$ und $a = \frac{1}{2}$:

$$(9) \quad f^{(1)}_{(m,\,r)} = \frac{1}{m^2 \cdot r}\left(\frac{r-1}{r^{1/m}-1}\right)^2 = \frac{[a]^2}{m^2 \cdot r}$$

$$(10) \quad f^{(0)}_{(m,\,r)} = \frac{1}{m^2 \cdot r^{\frac{m-1}{m}}}\left(\frac{r-1}{r^{1/m}-1}\right)^2 = \frac{[a]^2}{m^2 \cdot r^{\frac{m-1}{m}}}$$

$$(11) \quad f^{(\frac{1}{2})}_{(m,\,r)} = \frac{f^{(1)}_{(m,\,r)} + f^{(0)}_{(m,\,r)}}{2}$$

wo $[a] = r^{\frac{m-1}{m}} + r^{\frac{m-2}{m}} + \cdots\cdots + r^{1/m} + 1$



$$Y\,M^{(n)} = \frac{A^{Y} - H^{(N)}}{1 - G^{(N)}}$$

Setzen wir $r = 1 + i$, so erhalten wir in unendlicher Reihe:

$$(12)\quad f^{(1)}_{(m,\,r)} = 1 - \frac{1}{m}\cdot i + \frac{(m+1)(m+5)}{12m^2}\cdot i^2 - \frac{(m+1)(m^2+4m+1)}{12m^3}\cdot i^3 + \frac{(m+1)(19m^3+71m^2+29m+1)}{240m^4}\cdot i^4 - + \cdots\cdots$$

$$(13)\quad f^{(0)}_{(m,\,r)} = 1 - 0\cdot i + \frac{m^2-1}{12m^2}\cdot i^2 - \frac{m^2-1}{12m^3}\cdot i^3 + \frac{(m^2-1)(19m^2-1)}{240m^4}\cdot i^4 - + \cdots\cdots$$

$$(14)\quad f^{(\frac{1}{2})}_{(m,\,r)} = 1 - \frac{1}{2m}\cdot i + \frac{(m+1)(m+2)}{12m^2}\cdot i^2 - \frac{(m+1)^2(2m+1)}{24m^3}\cdot i^3 + \frac{(m+1)(19m^3+26m^2+14m+1)}{240m^4}\cdot i^4 - + \cdots\cdots$$

Ein allgemeines Bildungsgesetz für die Coefficienten und Untercoefficienten von i lässt sich nicht erkennen. Setzt man im geschlossenen Ausdruck $m = \pm 1$ und entwickelt die Resultate in Potenzreihen nach i, so ergibt sich, dass vom 3. Gliede ab in Reihe (12), (13) und (14) der Factor $(m + 1)$ und in Reihe (13) auch $(m - 1)$, also $(m^2 - 1)$ auftritt. Die Summe der Untercoefficienten ist ferner in (12) gleich 1; in (13) gleich 0 und in (14) gleich $\frac{1}{2}$. So ist z. B. in Gl. (12) der Coefficient von i^6:

$$\frac{863m^6 + 3990m^5 + 5040m^4 + 2100m^3 + 147m^2 - 42m - 2}{12096m^6}\Big/_{m\,=\,1} = \frac{12140 - 44}{12096} = 1$$

Für $m = \infty$ wird im geschlossenen Ausdruck und in der Reihe

$$(15)\quad f^{(a)}_{(\infty,\,r)} = \int_0^1 [r^{-a} + (r-1)a\,r^{-a}]\,da = \frac{(r-1)^2}{r(lr)^2} \qquad \text{wo } lr = log.\ nat.\ r.$$

$$(16)\quad \begin{cases} f^{(a)}_{(\infty,\,r)} = 1 - 0\cdot i + \frac{1}{12}i^2 - \frac{1}{12}i^3 + \frac{19}{240}i^4 - + \cdots\cdots \pm u_k i^k \mp \cdots \\ \text{wo } u_k = \dfrac{k-1}{1\cdot 2\cdot 3\cdot\cdots\cdot k}\int_0^1 (a-1)a\,(a+1)(a+2)\cdot\cdots\cdot(a+k-2)da < \dfrac{k-1}{k} < 1 \end{cases}$$

§ 16. *Betrachtung des Subtrahenten $\phi^{(a)}_{(m,\,r)}$ bei der Grundformel für terminweisen Rentenbezug.*

Der geschlossene Ausdruck für $\phi^{(a)}_{(m,\,r)}$ lautet:

$$(17)\quad \phi^{(1)}_{(m,\,r)} = \frac{r - mr^{1/m} + m - 1}{m^2(r^{1/m}-1)^2} = \frac{[b]-[a]}{m^2}$$

$$(18)\quad \phi^{(0)}_{(m,\,r)} = \frac{r^{\frac{m+1}{m}} - (m+1)r^{1/m} + m}{m^2(r^{1/m}-1)^2} = \frac{[b]}{m^2}$$

$$(19)\quad \phi^{(\frac{1}{2})}_{(m,\,r)} = \frac{\phi^{(1)}_{(m,\,r)} + \phi^{(0)}_{(m,\,r)}}{2}$$

$$\left.\begin{array}{l} \text{wo } [a] = r^{\frac{m-1}{m}} + r^{\frac{m-2}{m}} + \cdots\cdots + r^{\frac{1}{m}} + 1 \\ \text{und } [b] = 1\cdot r^{\frac{m-1}{m}} + 2\cdot r^{\frac{m-2}{m}} + \cdots\cdots + (m-1)r^{\frac{1}{m}} + m \end{array}\right\}$$

Die unendliche Reihe ist

$$(20)\quad \phi^{(1)}_{(m,\,r)} = \frac{m-1}{2m} + \frac{(m-1)(m-2)}{6m^2}\cdot i - \frac{(m^2-1)(m-2)}{24m^3}\cdot i^2 + \frac{(m^2-1)(m-2)(8m+1)}{360m^4}\cdot i^3 - + \cdots$$

$$(21)\quad \phi^{(0)}_{(m,\,r)} = \frac{m+1}{2m} + \frac{m^2-1}{6m^2}\cdot i - \frac{m^2-1}{24m^2}\cdot i^2 + \frac{(m^2-1)(4m^2-1)}{180m^4}\cdot i^3 - + \cdots\cdots$$

$$(22)\quad \phi^{(\frac{1}{2})}_{(m,\,r)} = \frac{1}{2} + \frac{(m-1)(2m-1)}{12m^2}\cdot i - \frac{(m^2-1)(m-1)}{24m^3}\cdot i^2 + \frac{(m^2-1)(16m^2-15m-4)}{720m^4}\cdot i^3 - + \cdots\cdots$$

Setzt man wieder im geschlossenen Ausdruck $m = \pm 1$, so kann man erkennen, ob und von welchem Gliede ab die Coefficienten der Reihe den Factor $(m-1)$ und $(m+1)$ haben. Aus $\phi^{(1)}_{(2,\,r)} = \frac{1}{4}$ folgt, dass die Reihe (20) für $m = 2$ alle Glieder mit i abwirft, d. h. dass vom 2. Gliede ab $(m-2)$ Factor des Coefficienten sein muss.

Für $m = \infty$ erhalten wir

$$(23)\quad \phi^{(a)}_{(\infty,\,r)} = \int_0^1 (1-a)r^a\,da = \frac{r-1-lr}{(lr)^2} = \frac{1}{2} + \frac{1}{6}i - \frac{1}{24}i^2 + \frac{1}{45}i^3 - + \cdots\cdots$$

§ 17. *Terminweise zahlbare nachschüssige Rente mit ganzjähriger Rückvergütung und voller Sterbterminsrente. Rückvergütung zahlbar am wiederkehrenden Eintrittstag. Sterbterminsleistung fällig am nächstfolgenden Rentenauszahlungstag.*

$$(24)\quad \left\{\begin{array}{l} {}^{m}_{m}M^{(1)}_{a} = \dfrac{f^{(1)}_{(m,\,r)}\cdot R_a - \phi^{(1)}_{(m,\,r)} + \dfrac{m-1}{2m}\,.\,{}^{a+n-1}G_a - {}^{a+n-1}H_a}{1 - {}^{a+n-1}G_a} \\ \\ n - \dfrac{m-1}{2m} \leqq {}^{m}_{m}M^{(0)}_{a} < n + \dfrac{m+1}{2m} \end{array}\right\}$$

§ 18. *Desgleichen ohne Sterbterminsleistung.*

$$(25)\quad \left\{\begin{array}{l} {}^{m}_{m}M^{(0)}_{a} = \dfrac{f^{(0)}_{(m,\,r)}\cdot R_a - \phi^{(0)}_{(m,\,r)} + \dfrac{m+1}{2m}\,.\,{}^{a+n-1}G_a - {}^{a+n-1}Ha}{1 - {}^{a+n-1}G_a} \\ \\ n - \dfrac{m+1}{2m} \leqq {}^{m}_{m}M^{(1)}_{a} < n + \dfrac{m-1}{2m} \end{array}\right\}$$

§ 19. *Desgleichen mit Rate im Sterbjahr.*

$$(26)\quad \left\{\begin{array}{l} {}^{m}_{m}M^{(\frac{1}{2})}_{a} = \dfrac{f^{(\frac{1}{2})}_{(m,\,r)}\cdot R_a - \phi^{(\frac{1}{2})}_{(m,\,r)} + \dfrac{1}{2}\,.\,{}^{a+n-1}G_a - {}^{a+n-1}H_a}{1 - {}^{a+n-1}Ga} \\ \\ n - \frac{1}{2} \leqq {}^{m}_{m}M^{(\frac{1}{2})}_{a} < n + \frac{1}{2} \end{array}\right\}$$

§ 20. *Allgemeine Darstellung der terminweise zahlbaren nachschüssigen Rente mit ganzjähriger Rückvergütung, fällig am wiederkehrenden Versicherungstage.*

$$(27)\quad \left\{ \begin{array}{l} {}^{m}_{m}M^{(a)}_{a} = \dfrac{f^{(a)}_{(m,\,r)} \cdot R_a - \phi^{(a)}_{(m,\,r)} + \phi^{(a)}_{(m,\,1)} \cdot G(n) - H(n)}{1 - G(n)} \\ \\ n - \phi^{(a)}_{(m,\,1)} \leqq {}^{m}_{m}M^{(a)}_{a} < n + 1 - \phi^{(a)}_{(m,\,1)} \end{array} \right\}$$

§ 21. *Desgleichen, wenn die Rückvergütung unmittelbar nach dem Ableben erfolgt.*

$$(28)\quad \left\{ \begin{array}{l} {}^{m}_{m}M^{(a)}_{a} = \dfrac{f^{(a)}_{(m,\,r)} \cdot R_a - \phi^{(a)}_{(m,\,r)} + \phi^{(a)}_{(m,\,1)} \cdot r^{\frac{1}{2}} \cdot G(n) - r^{\frac{1}{2}} \cdot H(n)}{1 - r^{\frac{1}{2}} \cdot G(n)} \\ \\ n - \phi^{(a)}_{(m,\,1)} \leqq {}^{m}_{m}M^{(a)}_{a} < n + 1 - \phi^{(a)}_{(m,\,1)} \end{array} \right\}$$

Anmerkung: Die terminweise Rente *mit terminweiser Rückvergütung* ergibt sehr umfangreiche Formeln, von deren Darstellung abgesehen werden soll.

§ 22. *Näherungswerthe für terminweise nachschüssige Renten mit ganzjähriger Rückvergütung.*

Näherungswerthe von hinlänglicher Genauigkeit ergeben sich, wenn man beim Factor $f^{(a)}_{(m,\,r)}$ die zweiten und höheren, beim Subtrahenten $\phi^{(a)}_{(m,\,r)}$ die ersten und höheren Potenzen von i vernachlässigt. Wir erhalten dann

$$(29)\quad \left\{ \begin{array}{l} {}^{m}_{m}M^{(a)}_{a} = \dfrac{\left(1 - \frac{a \cdot i}{m}\right) \cdot R_a - \phi^{(a)}_{(m,\,1)} + \phi^{(a)}_{(m,\,1)} \cdot G(n) - H(n)}{1 - G(n)} \\ \\ n - \phi^{(a)}_{(m,\,1)} \leqq {}^{m}_{m}M^{(a)}_{a} < n + 1 - \phi^{(a)}_{(m,\,1)} \end{array} \right\}$$

oder in anderer Darstellung

$$(30)\quad \left\{ \begin{array}{l} {}^{m}_{m}M^{(a)}_{a} = \dfrac{\left(1 - \frac{a \cdot i}{m}\right) \cdot R_a - \frac{m + 1 - 2a}{2m} + \frac{m + 1 - 2a}{2m} \cdot G(n) - H(n)}{1 - G(n)} \\ \\ n - \dfrac{m + 1 - 2a}{2m} \leqq {}^{m}_{m}M^{(a)}_{a} < n + \dfrac{m - 1 + 2a}{2m} \end{array} \right\}$$

§ 23. *Terminweiser Rentenbezug gegen einmaligen Aufschlag Z, der nicht rückvergütungsberechtigt ist. Kürzeste Form der Näherungswerthe.*

Wir setzen voraus, dass der Aufschlag Z nicht einen unausgeschiedenen Theil der Einlage M bildet, sondern gesondert etwa in Form eines Eintrittsgeldes erhoben wird.

Alsdann ist der Zuschlag Z für je 1 Mark (Dollar, Frank u. s. w.) Jahresrente, zahlbar in m unterjährigen Terminen im Betrage in je $\frac{1}{m}$ Mark:

$$(31)\quad {}^{m}_{m}Z^{(1)}_{a} = \frac{m-1}{m}\left(i \cdot A^{(1)}_{a} - \frac{1}{2}\right)$$

$$(32)\quad {}^{\frac{m}{m}}Z_a^{(0)} = \frac{m-1}{2m}$$

$$(33)\quad {}^{\frac{m}{m}}Z_a^{(\frac{1}{2})} = \frac{m-1}{2m} \cdot i \cdot A_a^{(\frac{1}{2})}$$

$$(34)\quad {}^{\frac{m}{m}}Z_a^{(\alpha)} = \frac{m-1}{m}\left(\alpha \cdot i \cdot A_a^{(\alpha)} + \frac{1-2\alpha}{2}\right)$$

5. Kapitel.

Einlagen für steigende Renten mit Rückvergütung.

§ 24. *In arithmetischer Reihe I. Ordnung steigende Renten ohne Sterbjahrsrente.*

Die Rente werde erstmals nach einem Jahre ausbezahlt und belaufe sich in 1, 2, 3, 4 ..... Jahren auf $1;\ 1+\rho;\ 1+2\rho;\ 1+3\rho \ldots\ldots$, wobei $\rho > 0$ ist.

Wie leicht ersichtlich benötigt man bei arithmetischen Reihen I. Ordnung einer weiteren Summation der discontirten Zahlen der Lebenden und der Todten. Dadurch erfahren unsere Hilfszahlen R sowie G und H eine Erweiterung.

Wir wollen als neue Hilfswerthe die Werthe S und K einführen, die sich definiren wie folgt

$$S_a = \frac{\Sigma\Sigma D_a}{D_a} = \frac{1\cdot D_a + 2\cdot D_{a+1} + 3D_{a+2} + 4D_{a+3} + \cdots\cdots}{D_a}$$

$$a+n-1K_a = \frac{a+n-1\Sigma\Sigma\Sigma C_a}{D_a}$$

$$= \frac{1\cdot C_a + 3C_{a+1} + 6C_{a+2} + 10C_{a+3} + \cdots\cdots + \frac{n(n+1)}{1\cdot 2}\cdot C_{a+n-1}}{D_a}$$

Die Einlage $(as)\ M_{(a)}^{(0)}$ beträgt in symmetrischer Darstellung:

$$(35)\quad (as)\ M_a^{(0)} = \frac{\left\{\rho\cdot S_a + (1-2\rho)\cdot R_a - (1-\rho)\right\} - \left\{\rho\cdot {}^{a+n-1}K_a + (1-2\rho)\cdot {}^{a+n-1}H_a - (1-\rho)^{a+n-1}G_a\right\}}{1 - {}^{a+n-1}G_a}$$

wobei $\quad n-1+\frac{(n-1)(n-2)}{2}\rho \leqq {}_{(as)}M_a^{(o)} < n+\frac{n(n-1)}{2}\rho$

§ 25. *In geometrischer Reihe steigende Renten ohne Sterbjahrsrentenleistung.*

Bezeichnen wir die nach 1, 2, 3, 4 ..... Jahren fällige Rente mit $1, \sigma, \sigma^2, \sigma^3 \ldots\ldots$, wobei $\sigma > 1$ ist, und verstehen wir unter $\bar{R}$ und $\bar{G}$ die mit $v\cdot\sigma$ abgezinsten Werthe R und G, so ist

$$(36)\quad \left\{\begin{array}{l} {}_{(gs)}M_a^{(0)} = \dfrac{\frac{1}{\sigma}\cdot\bar{R}_a - \frac{1}{\sigma} + \frac{1}{\sigma-1}\cdot {}^{a+n-1}G_a - \frac{1}{\sigma(\sigma-1)}\cdot {}^{a+n-1}\bar{G}_a}{1 - {}^{a+n-1}G_a} \\ \\ \dfrac{\sigma^{n-1}-1}{\sigma-1} \leqq {}_{(gs)}M_a^{(0)} < \dfrac{\sigma^n-1}{\sigma-1} \end{array}\right\}$$

§ 26. *Nach Massgabe der rechnungsmässigen Sterblichkeit steigende Renten ohne Rückvergütung.*

Eine interessante Art steigender Renten erhält man, wenn man den Vorgang, welcher bei einer Tontine an einer Gruppe lebender Personen thatsächlich sich abspielt, in eine Rechenhypothese verwandelt. Man geht hiebei von einer grossen Anzahl gleichaltriger Personen aus, welche gleiche runde Einlagebeträge in eine gemeinsame Kasse legen. Die Zinsen des Gesamtvermögens werden an die nach der Tafel jeweils lebenden Personen gleichmässig vertheilt, so dass der Antheil des Einzelnen mit zunehmendem Alter wächst. Die steigende Zinsenrente erhöht sich noch durch das Erträgniss der Kapitalauflösung. Die Kapitalauflösung kann durch eine Leibrente oder durch eine Zeitrente erfolgen. Im ersteren Falle ist die durch die Kapitalauflösung erzielte Ergänzungsrente gleichbleibend, in letzterem Falle steigend. Die nach Massgabe der rechnungsmässigen Sterblichkeit steigende Rente setzt sich also zusammen aus einer steigenden Zinsenrente und einer gleichbleibenden oder steigenden Ergänzungsrente; sie ist somit unter allen Umständen steigend.

Dieser Grundgedanke kann noch einige Weiterungen erfahren. Zunächst ist es empfehlenswerth, eine Maximalgrenze für das Anwachsen der Rente festzustellen. Ferner kann man die Kapitalauflösung erst in einem späteren Alter beginnen lassen und endlich in den ersten Versicherungsjahren nicht das ganze Zinsenerträgniss zur Ausschüttung bringen, sondern einen Theil der Zinsen bis zum Zeitpunkt der Kapitalauflösung zurückbehalten, um dann eine nachhaltige Steigerung zu erzielen.

§ 27. *Desgleichen mit Rückvergütung.*

Eigenartige Verhältnisse werden nun geschaffen, wenn das Problem der Rückvergütung hinzutritt. Da die Renten nach unbekanntem Gesetze steigen, so ist die Behandlung der Aufgabe wesentlich anders als bisher. Die Lösung scheint unmöglich zu sein, aber sie scheint auch nur so; sie gelingt in allen Fällen in eindeutiger Weise.

Als geeigneter Gang dürfte der folgende zu empfehlen sein. Man geht zunächst wieder von einer runden Einlage der idealen Gesellschaft aus und ermittelt durch fortlaufende Rechnung an Hand der Tafel die Ausgabe an Zinsenrenten und Rückvergütungsbeträgen sowie das Restkapical der Überlebenden. Dabei bestimmen sich die Rückvergütungsbeträge vorläufig nur unter Zuziehung der Zinsenrenten. Auf diese Weise findet man, dass nach einer Reihe von n' Jahren keine Rückvergütung mehr geleistet wird. Von da ab bleibt das vorhandene Restkapital der Gesamtheit ungeschmälert und die Rechnung geht weiter wie bei der Form ohne Rückvergütung.

Kommt hiebei der Fall vor, dass die Zinsenrente in den ersten Jahren abnimmt, sei es weil ein Theil der Zinsen angesammelt wird, sei es wegen des Verwaltungszuschlages, so muss die erste Rente unbedingt als Mindestrente festgesetzt und der Mehraufwand eben dem Kapitale entnommen werden.

Der Ergänzungsrente fällt nun eine doppelte Aufgabe zu. Sie hat zunächst wie bei der Form ohne Rückvergütung das mit Aufhören der Tafel oder mit Beginn der Maximalrente verfügbare Kapital den Versicherten in einem geeigneten Zeitpunkt als Leib- oder Zeitrente

zuzuführen. Dazu kommt noch die Correctur der Rückvergütungsbeträge. Durch die gesuchte Ergänzungsrente erhöht sich die gesammte Rente und vermindert sich die Rückgewähr. Es werden vorläufig festgelegte Kapitalien nachträglich wieder frei und müssen zur Erhöhung der Ergänzungsrente verwendet werden. Ebenso vermindert sich die Dauer der Rückvergütung. Dieselbe beträgt nicht n' (recurrirend gefundene Zahl) sondern n (gesuchter Werth) Jahre, wobei $1 \leqq n \leqq n'$ ist.

§ 28. *Die Ermittlung der Ergänzungsrente bei tontinenartig steigenden Renten mit Rückvergütung.*

Bei Renten, welche nach Massgabe der rechnungsmässigen Sterblichkeit steigen, ist die Einlage constant; sie beträgt in der Regel 100 Mark. Die Rolle, welche bisher der Einlage zugefallen ist, geht nunmehr auf die Ergänzungsrente über. Wir unterscheiden Kapitalauflösung durch eine Leib- und durch eine Zeitrente und setzen voraus, dass die Sterbjahrsrente voll ist.

Im ersteren Falle sei y die gesuchte Jahresrente (nicht Einlage) und $A_a^{(1)} = \frac{1}{r} \cdot R_a$ der Barwerth der nachschüssigen Rente 1. Der zur Auflösung verfügbare Kapitalbetrag des einzelnen Versicherten im Alter von a Jahren möge mit E_a bezeichnet sein, wobei $E_a < 100$ ist. Die Correctur der Rückvergütung vom Alter a bis $a+n$ ist

$$y \cdot \frac{1 \cdot C_a + 2 \cdot C_{a+1} + \cdots + n\, C_{a+n-1}}{D_a} = y \cdot {}_{a+n-1}H_a = y \cdot H(n).$$

Vom Alter $a+n$ bis $a+n'$ betrage sie ${}_{a+n}^{a+n'-1}T_a = T(n)$. Dabei ist n' ein gegebener constanter und n gesuchter variabler Werth. Wir haben somit für die Ermittlung der Ergänzungsrente y die Gleichung $y \cdot A^{(1)} = E + y \cdot H(n) + T(n)$, woraus hervorgeht

$$y = \frac{E + T(n)}{A^{(1)} - H(n)} = \psi(n) \tag{37}$$

Geschieht die Kapitalauflösung durch eine Zeitrente, so möge der gesuchte jährlich zur Vertheilung gelangende Gesamtbetrag mit Z bezeichnet sein. Der Barwerth der Zeitrente 1, zahlbar bis zum höchsten Alter ω, ist $S^{(1)} = v + v^2 + v^3 + \cdots\cdots + v^{\omega-a}$. Als Correctur vom Alter a bis $a+n$ haben wir $\frac{1}{l_a} \cdot d_a \cdot v + \left(\frac{1}{l_a} + \frac{1}{l_{a+1}}\right) d_{a+1} \cdot v^2 + \cdots\cdots$

$$\cdots\cdots + \left(\frac{1}{l_a} + \frac{1}{l_{a+1}} + \cdots\cdots + \frac{1}{l_{a+n-1}}\right) d_{a+n-1} \cdot v^n = {}_{a+n-1}h_a = h(n).$$

Die Gleichung der Ergänzungsrente ist somit

$$Z \cdot S^{(1)} = E_a \cdot l_a + Z \cdot h(n) + T(n) \cdot l_a = E \cdot l + Z \cdot h(n) + T(n) \cdot l$$

$$Z = \frac{E + T(n)}{S^{(1)} - h(n)} \cdot l = \Psi(n) \tag{38}$$

Dabei ist y die Ergänzungsrente des einzelnen Mitgliedes, Z diejenige der imaginären Gesamtheit. Auf den Kopf entfällt in letzterem Falle der Betrag $z_{a+x} = \frac{Z}{l_{a+x}}$.

§ 29. *Das Problem der Rückvergütung bei Renten, die nach Massgabe der rechnungsmässigen Sterblichkeit steigen.*

Der Nerv der Sache liegt nunmehr in der Ermittlung der Ergänzungsrente. Dieselbe ist von der Form $y = \psi(n)$ oder $Z = \Psi(n)$, also unbestimmt. Der Werth n bedeutet die revidirte Rückvergütungsdauer und ist desshalb eine positive ganze Zahl zwischen den Grenzen 1 und n'. Man erhält somit für jedes Eintrittsalter a anstatt *einer* Ergänzungsrente deren mehrere. Unter denselben ist diejenige die richtige, welche die Rentenbeträge in der Weise beeinflusst, dass die Summe derselben nach n Jahren kleiner ist als die Einlage 100, während sie nach $n+1$ Jahren dieselbe übersteigt. Wir haben somit wieder ein System einer Gleichung und einer Ungleichung. Bezeichnet $U^{(1)}_{a+x}$ die Jahresrente (Zinsenrente $u^{(1)}_{a+x}$ zuzüglich Ergänzungsrente y oder $z^{(1)}_{a+x}$) mit $a+x$ Jahren, so gilt

Grundgleichung.

$$(39) \qquad \left\{ \begin{array}{l} y = \psi(n) \qquad \text{oder } Z = \Psi(n) \\ U^{(1)}_{a+1} + U^{(1)}_{a+2} + \cdots\cdots + U^{(1)}_{a+n} \leq 100 < U^{(1)}_{a+1} + \\ \qquad\qquad\qquad\qquad\qquad\qquad U^{(1)}_{a+2} + \cdots\cdots + U^{(1)}_{a+n+1} \end{array} \right\}$$

Nebenbedingung.

Auch hier ist der den n-Bedingungen entsprechende richtige Werth eindeutig bestimmt und ein Extremum, aber ein *Minimum*. Der Beweis hiefür ist vom Verfasser im Assekuranzjahrbuch von Ehrenzweig Jahrgang XXIV (1903) gegeben.

Da die Einlage ein constanter Werth ist, so findet die bei Rückvergütung characteristische Methode Anwendung auf die Ermittlung der Ergänzungsrente. Die n-Bedingungen sind kein Geradenpaar sondern gegen die n-Achse convexe Curvenzüge. Sie schliessen nicht den gesuchten Werth $y = \psi(n)$ oder $Z = \Psi(n)$ sondern die Einlage $y = 100$ ein. Ein Minimalgesetz macht sich geltend, weil wir nicht wie bisher von einer runden Rente 1 sondern von einer runden Einlage 100 ausgegangen sind, also im ganzen reciproke Verhältnisse vorliegen haben. Dies zeigt sich auch daran, dass beim Bruche der Gleichung (1) die Differenz $\frac{1}{r} \cdot R_a - {}^{a+n-1}H_a = A^{(1)} - H(n)$ im Zähler, bei Gleichung (32) aber im Nenner auftritt.

§ 30. *Geometrische Darstellung der Ergänzungsrente y sammt n-Bedingungen.*

Grundlagen: Stuttgarter Tafel; 4 % Zins; kein Verwaltungszuschlag. Eintrittsalter 60 Jahre; Einlage 100 Mark. Ein Achtel der Einlage wächst mit Zinseszinsen an bis zum 65. Jahr. Kapitalauflösung vom 65. Jahre ab; Maximalrente 100 Mark. $n' = 16$. Die 16 Ergänzungsrenten sind: 4,27; 4,05; 3,86; 3,70; 3,57; 3,47; 3,38; 3,33; 3,29; 3,28; 3,30; 3,33; 3,40; 3,50; 3,64; 3,83.

6. Kapitel.

Verwaltungszuschläge für Leibrenten mit Rückvergütung.

§ 31. *Verwaltungszuschlag* ohne *Rückvergütung.*

Der Zuschlag möge aus einem Factor $\lambda \gtrless 1$ und aus einer additiven Constanten $\mu \gtrless 0$ bestehen. Ist M die Nettoeinlage und $\mathfrak{M}$ die Bruttoeinlage, so haben wir

$$\mathfrak{M}^{(a)} = \lambda . M^{(a)} + \mu \tag{40}$$

wobei speciell $\lambda = 1$ oder $\mu = 0$ werden kann.

§ 32. *Verwaltungszuschlag* mit *Rückvergütung.*

$$\left\{ \begin{array}{l} M^{(a)}_{(n)} = \dfrac{f^{(a)}_{(r)} \cdot R - (1-a) + (1-a) \cdot G(n) + \mu \cdot G(n) - H(n)}{1 - \lambda \cdot G(n)} \\ \qquad\qquad = \dfrac{A^{(a)} + (1+\mu-a) \cdot G(n) - H(n)}{1 - \lambda \cdot G(n)} \\ n - 1 + a \leqq \lambda \cdot M^{(a)}_{(n)} + \mu < n + a \end{array} \right\} \tag{41}$$

$$\left\{ \begin{array}{l} \mathfrak{M}^{(a)}_{(n)} = \lambda \cdot M^{(a)}_{(n)} + \mu = \dfrac{A^{(a)} + (1-a)\, G(n) - H(n) + \frac{\mu}{\lambda}}{\frac{1}{\lambda} - G(n)} \\ n - 1 + a \leqq \mathfrak{M}^{(a)}_{(n)} < n + a \end{array} \right\} \tag{42}$$

In der Wahl von λ und μ ist man nicht ganz frei. Die kleinsten Werthe sind $\lambda = 1$ und $\mu = 0$. Bei zunehmendem λ oder μ wachsen die Einlagewerthe M und $\mathfrak{M}$ ganz unverhältnissmässig und sind bald nicht mehr zu gebrauchen. Specielle Fälle entstehen, wenn $\lambda = 1$ oder $\mu = 0$ wird.

Anmerkung: Vergleiche auch die Abhandlungen des Verfassers:

Sofort beginnende Leibrenten mit Rückvergütung der Baareinlage abzüglich der bereits bezogenen Renten. Separatabdruck aus der „Oesterreichischen Versicherungs-Zeitung," XXVIII. Jahrgang. Wien 1901. Im Kommissionsverlag der H. Lindemann'schen Buchhandlung, Stuttgart 1902.

Nach Massgabe der rechnungsmässigen Sterblichkeit steigende Renten. Separatabdruck aus A. Ehrenzweigs „Assekuranz-Jahrbuch," XXIV. Jahrgang. Wien 1903.

Die Auszahlungsweise in ihrem Einfluss auf die Rentenwerthe. Separatabdruck aus der „Oesterreichischen Versicherungs-Zeitung," XXIX.-XXX. Jahrgang. Wien 1903. Im Kommissionsverlag der H. Lindemann'schen Buchhandlung, Stuttgart 1903.

ABSTRACT.

THEORY OF ANNUITIES WITH REPAYMENT OF CASH DEPOSITS, LESS ANNUITIES RECEIVED.

By Carl Dizler.

In this form of insurance, the theory of which the author describes thoroughly, the Company assumes the responsibility to pay, besides an annuity lasting for life, an amount of compensation in case of death, which consists of the precise excess of the cash deposit over the sum of the annuities received. The repayment is therefore decreasing and ceases altogether after a certain number of years. It is calculated so that the insured and his heirs receive back, with annuities and repayment, at least the cash deposit. For the companies a gradual change takes place of a purely interest business into an insurance business. Therefore the receipts by reason of deaths as also the disbursements for payments of reimbursement of capital to the living, as per calculation, are proportionally small in the first years of insurance. The risk becomes important at a time when the effect of the selection of new members is no longer felt.

If one developes the values of the annuities, the task is of peculiar difficulty. Because the final formulae contain an unknown value n, which means the duration of repayment. They are of the form $y = \psi(n)$ and therefore undetermined and not solvable. The number of the possible solutions is at first immensely large. It decreases, however, very much by considering that the value n can only be a positive whole member within certain limits. Furthermore two amounts of annuities can be fixed according to the definition of the repayment, $\chi_1(n)$ and $\chi_2(n)$ which — if duration (n) of insurance is chosen correctly — include the deposit $M(n)$. In this way one may solve the problem, which appeared generally insolvable. The desired values of annuities appear, therefore, always as a system of an equation with the proper secondary condition. They are of the form:

$$\left\{ \begin{array}{c} y = \psi(n) \\ \chi_1(n) \leqq M(n) < \chi_2(n) \end{array} \right\}$$

Usually the desired value of the annuity $\psi(n)$ will be at the same time the amount of the deposit $M(n)$ which is included in the equation. However, it may happen that $\psi(n)$ and $M(n)$ differ from each other. This is especially in case $M(n)$ is of a given constant value.

In the introduction the author speaks of the manner and the technical peculiarity of the subject.

The report is divided into chapters and articles. For the most part only the results and their reciprocal relations are dealt with. The details, especially the developments, are already published in another place.

In Chapter I. the deposits for annuities payable in addition are spoken of. Concerning the payment of annuities in the year of death, three cases are distinguished; full payment in the year of death; no payment in the year of death, and payment of the annuity until the day of death. These three formulae are then put together in a basis of formulae with annuities in the year of death

$$\alpha \text{ where } 0 \leqq \alpha \leqq 1.$$

In Chapter II. the author speaks more fully of the fundamental problem of repayment. He shows at first that the equation of the deposit only gives a certain value of annuities in connection with the equation of the condition. Then follows an example and scheme for the calculation. Further it is proven that the correct value excluded from the number of possible values by the secondary conditions is a maximum value, and further that by these secondary conditions always one and only one solution is arrived at. From one figure it becomes apparent that we have to do with the point of intersection of a curve marked by equidistant points with a strip of plane.

Chapter III. refers to the reimbursement capital, amounts of devolution and mortality quota (premium of risk). The formulae presume that in the year of death the annuity α is paid. An example shows the differences between the form with and without repayment.

Chapter IV. deals with annuities payable at certain periods by exact formulae with approximating values and against one advance not entitled to repayment.

Chapter V. is devoted to rising annuities, and there a difference is made between annuities which rise according to a certain law and those which increase by routine. The first kind is represented arithmetically and geometrically. In the latter case the problem of repayment shows a remarkable deviation. Because deposit $M(n)$ is constant and the desired value $\psi(n)$ is different from $M(n)$. The place of the maximum-law is taken by a minimum-law, as there are in general reciprocal values. A figure annexed explains clearly the existing circumstances.

In Chapter VI. the author speaks of the loadings for supervision. A difference is made whether the repayment is extended to this addition or not. The additions are given in form of two constant values, of which one as factor is proportional to the deposit and the other as item proportional to the annuity.

Observations: See also the following treatises of the author:

Annuities, beginning at once with repayment of the cash deposits less annuities already received. (Separate copy ex: "Oesterreichische Versicherungs-Zeitung" (Austrian Insurance Gazette), XXVIII. annual publication. Vienna, 1901. Published in commission by H. Lindemann, bookseller, Stuttgart, 1902.)

Annuities rising according to calculated mortality. (Separate copy ex: A. Ehrenzweig's Assurance Yearbook, XXIV. annual publication. Vienna, 1903.)

Manner of payments and their influence on the values of Annuities. (Separate copy ex: Austrian Insurance Gazette, XXIX.-XXX. annual publications. Vienna, 1903. Published in commission by H. Lindemann, bookseller, Stuttgart.)

RÉSUMÉ.

THÉORIE DES RENTES VIAGÈRES AVEC REMBOURSEMENT DES SOMMES VERSÉES MOINS LES RENTES DÉJÀ REÇUES.

Par Carl Dizler.

Dans cette forme d'assurance que l'auteur décrit complètement, la compagnie s'engage à payer outre une rente viagère une somme, en cas de décès, égale au surplus positif des dépôts sur les rentes déjà reçues. Ce remboursement décroit donc et finit par devenir nul après un certain nombre d'années. On calcule que l'assuré et ses héritiers reçoivent, soit en rentes, soit en remboursement, le dépôt primitif versé. L'affaire change graduellement pour la compagnie d'une question purement d'intérêts en une question d'assurance. Par conséquent, les recettes aux décès des assurés, ainsi que les dépenses à charger aux remboursements pour les vivants, sont proportionellement petites pendant les premières années d'assurance. Le risque devient important à l'époque où les effets du choix de nouveaux membres ne se fait plus sentir.

Si l'on veut développer les valeurs des rentes annuelles, la tâche présente des difficultés particulières, parceque les formules de fin contiennent aussi une valeur inconnue (n) qui signifie la durée des remboursements. Les formules sont de la form $y = \psi(n)$ qui les rend incertaines et impossibles à résoudre.

Le nombre des solutions possibles est très grand au début. Il diminue cependant beaucoup si on considère que la valeur n ne peut être qu'un zéro entier positif dans certaines limites. On peut de plus fixer deux chiffres de rente suivant la définition du remboursement $\chi_1(n)$ et $\chi_2(n)$ qui, si la durée n de l'assurance est bien choisie, comprennent le dépôt $M(n)$. On peut de cette manière réussir à résoudre l'équation qui semblait insoluble. Les valeurs cherchées de la rente paraissent donc être toujours un système d'équations avec les conditions secondaires bien choisies. Elles sont de la forme

$$\left\{ \begin{array}{c} y = \psi(n) \\ \chi_1(n) \leqq M(n) < \chi_2(n) \end{array} \right\}$$

Généralement la valeur cherchée de la rente $\psi(n)$ sera aussi le chiffre du dépôt $M(n)$ qui est inclu dans l'équation. Il peut se faire cependant que $\psi(n)$ et $M(n)$ diffèrent l'un de l'autre. Ceci se présente surtout lorsque $M(n)$ est d'une valeur donnée constante.

Dans son introduction l'auteur traite de la manière et de la particularité technique de cet objet.

Le rapport est divisé en chapitres et articles. Il traite surtout des résultats et de leurs relations réciproques. Les détails, surtout les développements, sont déjà publiés autre part.

Le chapitre I traite des dépôts pour rentes additionnelles. On distingue trois cas concernant le paiement de la rente pour l'année de la mort: paiement de la rente complète pour l'année du décès, non-paiement de rente pour l'année du décès et paiement de la rente jusqu'au jour du décès. Ces trois formules sont alors mises ensemble dans une base de formules avec la rente de l'année du décès,

$$\alpha \text{ pour } (0 \leq \alpha \leq 1).$$

L'auteur traite plus complètement dans le chapitre II du problème fondamental du remboursement. Il montre tout d'abord que l'équation de dépôt ne donne qu'une certaine valeur de rentes en connexion avec l'équation de la condition. Il donne ensuite un exemple et un projet de calcul. Il est de plus prouvé que la valeur corrigée obtenue par élimination du nombre des valeurs possibles au moyen des conditions secondaires est une valeur maxima, et de plus qu'au moyen de ces conditions secondaires on arrive toujours à une seule et même solution. Un chiffre montre que nous avons à considérer le point d'intersection d'une courbe marquée par des points équidistants d'une bande de surface plane.

Le chapitre III traite de la qualité de remboursement-capital, chiffres de dévolution et mortalité (prime de risque). Les formules supposent qu'on paie la rente α dans l'année du décès. Un exemple montre les différences dans la forme avec ou sans remboursement.

Le chapitre IV traite des rentes annuelles payables à certaines périodes au moyen de formules exactes avec des valeurs approximatives et contre une avance sans remboursement.

Le chapitre V est dévoué aux augmentations d'annuité et fait une différence entre celles qui augmentent suivant une certaine loi et celles qui augmentent suivant routine. La première sorte peut se représenter arithmétiquement et geométriquement. Dans le second cas le problème de remboursement montre une déviation remarquable. Parceque le dépôt $M(n)$ est constant et la valeur cherchée $\psi(n)$ est différente de $M(n)$ une loi minima prend la place de la loi maxima car il y a en général des valeurs réciproques. Un chiffre ajouté là explique clairement les circonstances existantes.

Dans le chapitre VI l'auteur mentionne l'addition pour la surveillance. On fait une différence suivant que le remboursement s'étend ou non à cette addition. Les additions sont données sous forme de deux valeurs constantes, dont l'une somme facteur est proportionelle au dépôt et l'autre comme item proportionel à la rente.

Observations: Voyez aussi les traités suivants de l'auteur:

Rentes commençant de suite avec remboursement des versements, moins les rentes déjà reçues. (Copie séparé de la Gazette autrichienne d'assurance, XXVIIIe publication annuelle, Vienne 1901. Publié en commission par Lindemann, Libraire à Stuttgart, 1902.)

Rentes augmentant suivant le calcul de mortalité. (Copie séparé de l'Annuaire d'Assurance d'A. Ehrenzweig, XXIVe publication annuelle, Vienne 1903.)

Manières de paiements et leur influence sur les chiffres de la rente. (Copie séparé de la Gazette autrichienne d'assurance, XXIX/XXX publications annuelles, Vienne 1903. Publié en commission par H. Lindemann, Libraire à Stuttgart.)

ON A RATIONAL METHOD OF LOADING.

By Dr. J. H. Peek,

Actuarial Adviser of the Royal Assurance Bank, Amsterdam.

I beg to draw the attention of the Congress to the following free translation of a tract originally published in the "Zeitschrift für die gesammte Versicherungswissenschaft" (Life insurance magazine):

As in our days the old practice of charging net premiums founded on a false or hypothetic table of mortality is entirely abandoned, while on the contrary the method of augmenting the net premiums, calculated on a true basis, by a certain margin or loading, has been generally adopted, the problem of determining the loading has become of general interest, and surely deserves more care than is ordinarily spent upon it. Where on one side net premiums are calculated with utmost accuracy, the loading is often applied with amazing arbitrariness, the leading principle being generally a desire to make the office premiums fit to compete with those of other companies. This surely cannot be called either a sound or a scientific basis, while moreover the labour devoted to the precise calculation of the net premiums is greatly undone.

The desire to suggest a means by which this order of things might be altered gave rise to the following pages, which I now recommend to the benevolence of the Congress.

If a net premium has been calculated on the basis of mortality tables and of a rate of interest which have both been chosen with due accuracy, it must, apart from casual or symptomatical fluctuations in mortality, be sufficient for covering the risk.

The amounts by which such premiums are loaded must provide for the expenses of administration and commission as well as for the profit; moreover, it may serve as a measure against the unfavorable consequences of possible inaccuracy in the basis of calculation.

Determination of this amount, by which a net premium must be loaded, is one of the most difficult problems of practice, consequently it should arouse no wonder that it is not always solved in a satisfactory way, as is shown by many inconsistencies, which constantly remind us of the desirability of avoiding at least the most flagrant ones. In order to get convinced of this fact it will suffice to read in Mr. Landré's reputed work, *Mathematisch technische Kapittel zur Lebensversicherung* (Actuarial chapters), those chapters in which this subject is treated. On page 171, for instance, Mr. Landré writes that many forms of assurance can be divided into two or more different ones; and advices to load the premium for a combined assurance by a smaller amount than would result by simply adding the loadings of the single assurances. If on the contrary the loading has been determined without taking into consideration the risk involved, it will happen that in the case of an endowment the insured might, at the end of the period contracted, have received a greater sum if he had put out his premiums in a savings bank than the company will pay him for the same premiums. Yet there are several companies who will effect insurance contracts on similar terms. The assured, learning afterwards that he has prejudiced his heirs, without securing any profit for himself, feels disappointed, and it is clear that a similar case is apt to disturb the sympathy even of those who are favorably disposed towards life insurance, and will increase the number of its ene-

mies. To attenuate the most obvious inconsistencies different methods have been recommended. Some actuaries load the single or annual net premium of an endowment assurance contract by the same margin as the corresponsive premiums for an ordinary assurance against death. In this case the fraction of the premium by which it is loaded decreases together with the period of the contract, and at all events it is smaller than in the case of an ordinary assurance of an equal capital payable at the death of the same person, the latter consisting mostly of a fixed part of the net premium.

If we wanted to deduce the loading of a single payment, the loading of the corresponsive annual premium being established, we might reason as follows: Let 19.46 be the net annual premium for an insurance of 1000 calculated on the basis of a certain mortality table and an interest of 3½%. Loaded with a margin of 10% we find the gross premiums to be 21.40. Now a capital of 611.40 invested at the rate of 3.5% would yield an annual interest of 21.40 exactly; so a capital of 611.40 + 21.40 = 632.80 put out at interest at 3½% would enable the assured by the interest alone to contract an assurance for 1000. As at the end of the dying year a capital of 632.80 is set free, the single payment of 632.80 is actually sufficient for an insurance of 1632.80. Consequently we deduce that the single gross premium for an insurance of 1000 is 387.60. Calculated on the same basis as the annual premium the single net premium is found to be 365.30; accordingly the gross premium of 387.60 contains a margin of nearly 6%.

This example, which I have borrowed from a tract by Mr. Vas Diaz, published in the "Archief voor de Levensverzekeringswetenschap" (Archives of actuarial science), is of particular interest because it is founded on this principle, that a company should not load that part of a premium for which she acts as a banker only, but merely the part corresponsive to the risk she runs. This principle is obviously correct. The above-mentioned monography is headed by the following remark: "I accept the following principle, the correctness of which I think nobody will doubt. If a company constantly receives from her investments a higher interest than she accepted for the calculation of her tariffs, she can, without risking a loss, borrow a capital at a rate of interest equal to that accepted. If, for instance, a company based her tariffs on the rate of 3.5%, and draws from her investments 4.5% or 4.25%, it will doubtless be of great advantage to this company if somebody wants to deposit a capital at the rate of 3.5%. This being true, there can be found no reasonable motive for taxing the lender with some fraction of the borrowed capital besides, saying, as it were, we are willing to borrow a 10,000 at the rate of 3.5% when you present us with an extra 200 or 300 besides."

The following, which I derive from the mentioned manual of Mr. Landré (page 171), is also fit to show that an insurance company should take into consideration the risk connected with any insurance contract, when fixing the amount by which it shall be loaded: "If, of two persons, both aged 40 years, the first assures himself of a certain amount if he dies within 20 years, the other of a twenty years deferred life annuity, both at a premium payable during 20 years, the company will enjoy the greatest profit if the first lives more than 20 years, and the second dies after having paid the 20 annual premiums, but before the day on which his annuity begins. On the contrary the company will suffer the greatest loss if the first dies after having paid his first premium and the second grows very old. Now if a third person aged 40 contracts the combined insurance of the same capital if he dies within 20 years, and of the same life annuity beginning at the end of this period, the net premium for this contract will be equal to the sum of the net premiums due for the two composing assurances, but in this case it is not possible that either the

greatest losses or the greatest profits coincide. The greatest loss and the greatest profit have decreased, something must be paid at all events, but the amount payable remains enclosed within narrower limits than in the former case, i.e., the mathematical risk of the combined assurance is smaller than the sum of the risks involved in the assurances contracted by two different persons. The loading can be taken somewhat (not much) smaller."

If the correctness of similar speculations is granted, a consequential reasoning will show that it is desirable to measure the loading by the risk involved.

But then, immediately this question arises—what may be regarded as a measure of risk? Mr. Bremiker's definition of this quantity cannot be applied in our case. The square root of the mean square of loss or profit, which he defines as such, has a meaning only in the case of a great number of contracts, not in the case of a single one. Much more appropriate, in my estimation, is the quantity which Mr. Wittstein, in his work, "das Mathematische Risico" (Mathematical risk of Life-insurance companies), has called "the expectation of loss or profit," though numerical valuation of this quantity requires considerably more work.

Let $m_1, m_2 \ldots . m_n$ be the respective monetary values of payments due to the assured if one of the occurrences $s_1, s_2 \ldots . s_n$, of which each one excludes all others, is realised, $p_1, p_2 \ldots . p_n$ the respective probabilities of realisation of these contingencies, the sum of which must be equal to 1.

Then the expectation of prize for the assured is

$$m_1 p_1 + m_2 p_2 + \ldots . m_n p_n = \sum_1^n{}^s m_s p_s. \quad . \quad . \quad . \quad . \quad (1)$$

Let $m^1_1, m^1_2 \ldots . m^1_n$ be the monetary values of those payments which the company will have received from the assured when $s_1, s_2 \ldots . s_n$ occurs. Then the expectation of prize for the company will be

$$m^1_1 p_1 + m_2 p_2 + \ldots . m^1_n p_n + \sum_1^n{}^s m^1_s p_s. \quad . \quad . \quad . \quad . \quad (2)$$

As these expectations are equal we have

$$\sum_1^n{}^s m^1_s p_s = \sum_1^n{}^s m_s p_s \quad \text{or} \quad \sum_1^n{}^s (m^1_s - m_s) p_s = 0. \quad . \quad . \quad (3)$$

If $m^1 - m > 0$ it signifies the value of the company's profit when s occurs; the value of the expectation on this profit is consequently

$$p_s (m^1_s - m_s).$$

By addition of all terms $p_s (m^1_s - m_s)$, in which $m^1 - m$ has a positive value, we get the expectation of profit H for the company. Addition of those terms in which $m^1 - m < 0$, taken positively, gives the expectation of the assured.

From (3) we deduce—

First Property.—*The expectation of profit of the company is equal to that of the assured.*

The company can only lose in those cases for which $m^1_s - m_s$ has a negative value. Supposing that the company had estimated some of the

probabilities p on half their actual value, she would yet suffer no loss when an occurrence takes place for which $m^1{}_s - m_s > 0$; when on the contrary $m^1{}_s - m_s$ is negative she will lose and the mean value of these losses would be equal to the expectation of profit for the assured. Concluding we find:

If a company loads her net premiums by an amount equal to the expectation of profit or loss on a certain contract she will not lose, even if all probabilities unfavorable to the company had been taxed at half their actual values, or which comes to the same, if she had estimated the favorable cases at twice their values.

From this again we deduce, that the expectation of profit indicates the degree to which a net premium depends upon the table of mortality. If it is small, this dependence will be an unimportant one, for otherwise it could not be sufficient to load the net premiums by this quantity in order to be secured against a doubling of the unfavorable cases.

Consequently the expectation of profit is a measure for the risk to which the company is exposed, if her calculations have been based upon probabilities of unsufficient accuracy. A loading proportional to the expectation of profit could, better than any other, serve as a measure against the consequences of an inaccurate basis of calculation. A company loading the net premiums by a similar margin is accordingly to a much smaller extent bound to be cautious in choosing her basis. For this reason such a company may allow herself the choice of a basis favorable to the assured, and will therefore be fit for competition more than any other company.

The expectation of profit has more properties making it very serviceable for determination of the loading. To find one of these we will return to the mentioned case of Mr. Vas Diaz. It is easy to show that the expectation of profit on the assurance of 1632.80 at a single payment is the same as that on the assurance of 1000 at annual premiums. The 632.80, which might as well be deposited at a banker's, would accordingly remain unloaded when the loading is taken proportional to the quantity H. The difference between both cases is namely this, that all quantities m as well as all quantities m^1 are diminished by 632.80, so that this amount disappears in $m^1 - m$. It will be understood that this property has a more general character, being valid for all values of the single premium and common to every form of assurance. We deduce from it:

Second Property.—*In determining the loading proportional to the expectation of loss or profit, the mere amount of the single premium in the case of an ordinary assurance against death, or of any payment which should be regarded as an investment only, remains unloaded.*

This is obviously correct, as the company, acting only as a savings bank, runs no risk on a similar amount. We deduce: By applying a margin proportional to the quantity H, a continuity is obtained between insurance company and savings bank. Companies applying this loading would for that reason be fit to contract for endowments, which partly at least resemble an investment in a savings bank.

An endowment assurance may be regarded as consisting of two different assurances—one if the assured dies, the other if he be alive. In a similar case it is possible that contracting the two assurances separately would prove cheaper than the combined contract. The sum of the net premiums might, indeed, have been greater in the first case, in consequence of the use of two different tables of mortality, but the loading could have inverted the sense of this inequality. Only if the margin had been determined according to the mentioned method this could never happen, and two separate contracts could never afford a cheaper result.

When using the same table of mortality for the endowment assurance and for the two separate ones, the premiums would be the same in either case. If, in the case of an endowment assurance, the period is taken gradually increasing, it will approach and finally become an ordinary assurance against death; the same will take place with the corresponding premiums as long as the margin is determined according to our method. This being again generally true, we deduce:

THIRD PROPERTY.—*If the loading is chosen proportional to the expectation of loss or profit, there will be a continuity between the different tariffs.*

Let the greatest profit which the assured can derive from a certain assurance of 1, that is the greatest of the positive values $m_s - m^1_s$, be called W, then W will be greater than the expectation of profit H, as the latter quantity is to be regarded as a mean value of the profit. Thence

$$W = m_s - m^1_s > H \quad \text{or} \quad m_s > m^1_s + H,$$

or k being a fraction < 1,

$$m_s > m^1_s + k\,H.$$

Now m_s is the monetary value of the company's payment if s occurs, and m^1_s is the monetary value of all net premiums which the assured will have paid at the same event. Thence we deduce:

FOURTH PROPERTY.—*When applying a margin $k\,H$, being a part of the expectation of loss or profit of the assured, the monetary value of the amounts received by the company, i.e., $m'_s + k\,H$, will always be surpassed by her payments, when the contingency, which is most favorable to the assured, is realised.*

A last advantage of our method is this, that it procreates in a natural way a uniformity in the premiums of different companies, which have adopted the same basis of calculation and chosen the same value of k.

We will now treat the calculation of the quantity H, which, unfortunately, is not always a very easy matter. The single method known at present causes a great deal of trouble, as generally it is hard to separate the different cases of loss and profit. I don't think there is any simple connection between this and other quantities used in actuarial science, nor has it special properties fit for abbreviating numerical valuation. The fact, however, that only an approximate knowledge of her value is required, renders a repeated calculation on the same basis, on which the net premiums are founded, rather superfluous; and it seems sufficient to perform the calculation once for all on a normal basis.

I will now give the formulæ for the calculation of H for some of the more important forms of insurance, adding some numerical results, most of which have been obtained when calculating the gross premiums of some insurance societies. In order to obtain regularity in the results it has been assumed that in cases where annual premiums are payable up to the death of the assured, a proportional part of the annual premium is due for the fraction of a year between the last payment and the death of the assured.

In my inaugural dissertation (Toepassing der waarschyn lykheids-rekening op Levensverrekering en Sterftestatistick, page 126–128) (Application of the calculus of probabilities on Life insurance and mortality statistics), where I recommended, though without ample explanation, to accept the expectation of loss or profit as a measure of the loading,

the formulæ relating to some cases were published. Apart from a few unimportant alterations, the following gives a translation of the pages concerned (pages 130–131).

The sum of the positive terms in the first member of equation (3) is equal to the sum of the absolute values of the negative terms, or the expectation of profit for the assured, is equal to that of the company. For this reason we are able to calculate the quantity H in two different manners, of which we can choose the easiest.

Assurance Against Death.

On an ordinary assurance contract the company will gain when death occurs after decursion of a certain lapse of time λ, which we might call "the mathematical duration" of this assurance. If the assurance was contracted by a person aged x years and at a single payment, the probability for the assured to live after this period will be $\frac{{}^{\lambda}l_x}{l_x}$; if it is an ordinary whole-life assurance, the profit consists of the interest yielded by the unity till the death of the assured. The mean profit is accordingly $i \cdot {}^{\lambda}\mathring{a}_x$ and

$$H = i \cdot \frac{{}^{\lambda}l_x}{l_x} \cdot v^{\lambda} \cdot {}^{\lambda}\mathring{a}_x = i \cdot \lambda \mid \mathring{a}_x.$$

If the assurance is contracted at invariable annual premiums of P_x payable till the assured dies, the profit consists of the interest yielded by the unity, augmented by the monetary value of the premiums paid till the assured dies. Thence we find for the mean profit $(P_x + i) \cdot {}^{\lambda}\mathring{a}_x$ and further

$$H = (P_x + i) \cdot \lambda \mid \mathring{a}_x.$$

If the premium is payable till the assured has reached the age $x + m$ we discern two different cases, viz., $m - \lambda > 0$ and $m - \lambda < 0$. In the second case $H = i \cdot \lambda \mid \mathring{a}_x$ in the first, however,

$$H = ({}_mP_x + i) \cdot \lambda \mid {}_{-m}\lambda\, \mathring{a}_x + i \cdot {}_m \mid \mathring{a}_x.$$

Reversionary Annuities.

The calculation of H in the case of a reversionary annuity is somewhat more intricate. Let x be the age of the assured and y that of the beneficiary. The mathematical duration of the assurance after the death of the assured, which may occur after s years, can be easily obtained; it be represented by λ_x. The probability for the beneficiary to reach this age is accordingly $\frac{{}^{s+\lambda_s}l_y}{l_y}$. The monetary value of the profit is in this case $v^{s+\lambda_s}\, {}^{s+\lambda_s}\mathring{a}_y$, in which formula ${}^{s+\lambda_s}\mathring{a}_y$, represents the complete annuity on the beneficiary when aged $y + s + \lambda_s$ years. If the probability for the assured to die after s years is ${}_s \mid \alpha_x$, we have

$$H = \sum_0^{\overline{n}} {}_s \mid \alpha_x \cdot \frac{{}^{s+\lambda_s}l_y}{l_y} \cdot v^{s+\lambda_s} \cdot {}^{s+\lambda_s}\mathring{a}_y = \sum_0^{\overline{n}} {}_s \mid \alpha_x \cdot {}^{s+\lambda_s} \mid \mathring{a}_y;$$

λ_s being a function of s, which can be deduced, if the assurance was effected at a single payment of $\mathring{a}_{x \mid y}$, from the equation:

$$\mathring{a}_{x \mid y} \cdot (1 + i)^s = {}^{\mathring{a}}\overline{\lambda_s}\rceil,$$

and if it was effected at annual premiums of $P\,(\mathring{a}_{x\,|\,y})$, from the equation:

$$P\,(\mathring{a}_{x\,|\,y}) \cdot \mathring{a}\,\overline{s\,|} \cdot (1+i)^s = \mathring{a}\,\overline{\lambda_s\,|}.$$

In these equations $\mathring{a}\,\overline{\lambda_s\,|}$ and $\mathring{a}\,\overline{s\,|}$ designate the monetary values of annuities certain for λ_s and s years.

We will now add to the preceding some new cases.

Endowments.

In this case the assured will not gain unless he be still alive at the end of a period of n years, the probability on this case being $\frac{{}^n l_x}{l_x}$.

When the assurance was effected at a single payment of ${}_nE_x$, the monetary value of the profit amounts to $v^n - {}_nE_x$, accordingly:

$$H = \frac{{}^n l_x}{l_x}\,(v^n - {}_nE_x) = \frac{{}^n D_x}{D_x} - {}_nE_x \cdot \frac{{}^n l_x}{l_x} = {}_nE_x \cdot \frac{l_x - {}^n l_x}{l_x}.$$

When the assurance was effected at annual premiums of $P\,({}_nE_x)$ the value of premiums paid amount to $P\,({}_nE_x) \cdot a\,\overline{n\,|}$ and the profit to

$$v^n - P\,({}_nE_x) \cdot a\,\overline{n\,|} = v^n \left\{ 1 - P\,({}_nE_x) \cdot a\,\overline{n\,|} \cdot \frac{1}{v^n} \right\},$$

accordingly

$$H = \frac{{}^n l_x}{l_x} \left\{ 1 - P\,({}_nE_x) \cdot a\,\overline{n\,|} \cdot \frac{1}{v^n} \right\} v^n = {}_nE_x \left\{ 1 = P\,({}_nE_x) \cdot a\,\overline{n\,|} \cdot \frac{1}{v^n} \right\}.$$

Endowment Assurance.

These formulæ are deduced in exactly the same manner as in the case of an ordinary assurance against death. They are analogous, with this exception only, that they contain temporary annuities instead of annuities payable during life.

Stipend Assurance.

This case is analogous to that of a reversionary annuity, only the calculation is rendered considerably easier by the short duration of the annuity assured, which is the characteristical feature of this form of assurance. Nevertheless, the calculation affords some difficulties which shall now be dealt with. We suppose that the first payment takes place when the beneficiary has accomplished his 18th year, and the last at the end of his 22d, moreover, that the premium, being payable at the beginning of every year, is due for the last time when the beneficiary has reached the age of 17 years, and that the obligation to pay the premiums ceases at the death of either the assured or the beneficiary.

This contract can yield a profit for the assured only when the beneficiary fulfils his 18th year. In that case we distinguish five different possibilities. The beneficiary will either die in the course of his 19th, 20th, 21st, or 22d year or he will fully reach the age of 22 years. If the assurance was effected at the age y of the beneficiary, the probability of each of these contingencies is expressed by

$$\frac{{}^{18-y}d_y}{l_y},\quad \frac{{}^{19-y}d_y}{l_y},\quad \frac{{}^{20-y}d_y}{l_y},\quad \frac{{}^{21-y}d_y}{l_y},\quad \frac{{}^{22-y}l_y}{l_y}.$$

Let x be the age at entry of the assured, then there will be a profit on his side if he dies before he has reached the age of $(x + t_z)$ years, t_z being determined by the equation

$${}_{18-y}P_x\,({}_{18-y|5}a_y)\cdot\left\{\left(\frac{1}{v}\right)^{tz}+\left(\frac{1}{v}\right)^{tz-1}+\ldots.+\varepsilon\right\}\cdot\left(\frac{1}{v}\right)^{z-(y+tz)}$$
$$=1+\frac{1}{v}+\frac{1}{v^2}+\ldots.\frac{1}{v^{z-18}};$$

or approximately

$${}_{18-y}P_x\,({}_{18-y|5}a_y)\cdot\frac{\left(\frac{1}{v}\right)^{tz+1}-1}{\frac{1}{v}-1}\cdot\left(\frac{1}{v}\right)^{z-(y+tz)}=1+\frac{1}{v}+\frac{1}{v^2}+\ldots.\frac{1}{v^{z-18}};$$

for $1+\frac{1}{v}+\frac{1}{v^2}+\ldots.\frac{1}{v^{z-18}}$ is the value of the payments which the beneficiary will have received if he dies when aged z years, z being a whole number, whilst ε denotes the fraction by which t_z exceeds a whole number.

If the assured dies in the age $z + s$, the monetary value of his profit is:

$$1+\frac{1}{v}+\left(\frac{1}{v}\right)^2+\ldots.\left(\frac{1}{v}\right)^{z-18}-{}_{18-y}P_x\,({}_{18-y|5}a_y)$$
$$\cdot\left\{\left(\frac{1}{v}\right)^{z-y}+\left(\frac{1}{v}\right)^{z-y-1}\ldots.\varepsilon\left(\frac{1}{v}\right)^{z-y-s}\right\}$$

or approximately

$$=\frac{\left(\frac{1}{v}\right)^{z-17}-1}{\frac{1}{v}-1}-{}_{18-y}P_x\,({}_{18-y|5}a_y)\cdot\left(\frac{1}{v}\right)^{z-y}\cdot\frac{\frac{1}{v}-\left(\frac{1}{v}\right)^{-s}}{\frac{1}{v}-1}.$$

The probability of this case is $\frac{{}^sd_x}{l_x}$, and consequently the correspondsive expectation of profit

$$\left\{\frac{\left(\frac{1}{v}\right)^{z-17}-1}{i}-\frac{{}_{18-y}P_x\,({}_{18-y|5}a_y)}{i}\cdot\left(\frac{1}{v}\right)^{z-y+1}\right\}\frac{{}^sd_x}{l_x}$$
$$+\frac{{}_{18-y}P_x\,({}_{18-y|5}a_y)\cdot\left(\frac{1}{v}\right)^{z-y+1}}{i}\cdot\frac{{}^sC_x}{D_x}.$$

The value of this quantity at the beginning of the assurance is:

$$\left\{\frac{\left(\frac{1}{v}\right)^{z-17}-1}{i\left(\frac{1}{v}\right)^{z-y}}-\frac{{}_{18-y}P_x\,({}_{18-y|5}a_y)}{i}\,\frac{1}{v}\right\}\frac{{}^sd_x}{l_x}+\frac{{}_{18-y}P_x\,({}_{18-y|5}a_y)}{i}\cdot\frac{1}{v}\frac{{}^sC_x}{D_x},$$

consequently we obtain the following formula for the case that the beneficiary dies when he is z years of age :

$$\left\{ \frac{\left(\frac{1}{v}\right)^{z-17} - 1}{i\left(\frac{1}{v}\right)^{z-y}} - \frac{{}_{18-y}P_x\,({}_{18-y|5}a_y)}{i}\,\frac{1}{v} \right\} \frac{l_x - {}_{tz}l_x}{l_x} + \frac{{}_{18-y}P_x\,({}_{18-y|5}a_y)}{i - D_x \cdot v}\,\frac{\sum_0^{tz-1} s}{}\,{}_sC_x.$$

The probability hereof being $\frac{{}_{z-y}d_y}{l_y}$, we deduce that the contribution of this quantity to the expectation of profit is

$$\left\{ \frac{\left(\frac{1}{v}\right)^{z-17} - 1}{i\left(\frac{1}{v}\right)^{z-y}} - \frac{{}_{18-y}P_x\,({}_{18-y|5}a_y)}{i}\,\frac{1}{v} \right\} \frac{{}_{z-y}d_y}{l_y}\,\frac{l_x - {}_{tz}l_x}{l_x} + \frac{{}_{18-y}P_x\,({}_{18-y|5}a_y)}{i \cdot v \cdot D_x} \cdot \frac{{}_{z-y}d_y}{l_y}\,\frac{\sum_0^{tz-1} s}{}\,{}_sC_x.$$

We now substitute for ${}_{z-y}d_y$ the respective values of ${}_{18-y}d_y$, ${}_{19-y}d_y$, ${}_{20-y}d_y$, ${}_{21-y}d_y$, ${}_{22-y}l_y$ and for t_z the values of t_{18}, t_{19}, t_{20}, t_{21}, and t_{22}, and finally obtain the expectation of profit H by addition of the different results of these substitutions.

The calculation of t_z by means of the equation

$${}_{18-y}P_x\,({}_{18-y|5}a_y) \cdot \left\{ \left(\frac{1}{v}\right)^{tz} + \left(\frac{1}{v}\right)^{tz-1} + \ldots\ldots \varepsilon \right\} \left(\frac{1}{v}\right)^{z(y+tz} = 1 + \frac{1}{v} + \frac{1}{v^2} + \ldots\ldots \frac{1}{v^{z-18}}$$

should be carefully executed, as between the values of z to be substituted some may be leading to such values of t_z for which $y + t_z > 17$. As at most $18 - y$ annual premiums are paid it is clear that in such a case the mentioned formula does not procure the true value of t_z.

Under these circumstances the following problem must be solved : If $18 - y$ premiums have been paid, how long should they be put out at interest to attain the value of the payments, viz.: $1 + \frac{1}{v} + \frac{1}{v^2} + \ldots\ldots \frac{1}{v^{z-18}}$? This involves the solution of t_z from the following equation :

$${}_{18-y}P_x\,({}_{18-y|5}a_y) \cdot \left\{ \left(\frac{1}{v}\right)^{17-y} + \left(\frac{1}{v}\right)^{16-y} + \ldots\ldots \right\} \left(\frac{1}{v}\right)^{tz-(17-y)} = 1 + \frac{1}{v} + \frac{1}{v^2} + \ldots\ldots \frac{1}{v^{z-18}}.$$

However, it will be presently shown that in this case performing of this calculatien is not necessary.

If the assured dies when he is $x + s$ years of age, the value of his profit, when the assured reaches the age of z years, is represented by the formula previously demonstrated. In order to deduce by means of

this value the expectation of profit in the present case, the summation should now be extended from 0 till $t_z - 1$, but from 0 to $17 - y$, the result being

$$\left\{ \frac{\left(\frac{1}{v}\right)^{z-17} - 1}{i\left(\frac{1}{v}\right)^{z-y}} - \frac{{}_{18-y}P_x\,({}_{18-y|5}a_y)}{i \cdot v} \right\} \frac{{}^{z-y}d_y}{l_y} \frac{l_x - {}^{18-y}l_x}{l_x}$$

$$+ \frac{{}_{18-y}P_x\,({}_{18-y|5}a_y)}{i \cdot v \cdot D_x} \frac{{}^{z-y}d_y}{l_y} \sum_{0}^{17-y} {}^{s}C_x.$$

It must be granted that the performance of similar calculations is no easy task. When, however, the quantity H is judged a proper measure for determining the loading, and this I hope to have sufficiently proved, the mentioned difficulty alone cannot be held a reason not to use it as such. For, according to the methods now in use, determination of the loading causes no less trouble.

Yet difficulties of quite another character may arise. The expectation of profit will sometimes prove so small that when an insurance concerns small amounts the loading would not provide for the necessary expenses.

There are doubtless some cases of insurance existent for which the quantity H is rather inconsiderable, when, for instance, the contractor of a stipend insurance is still young, while the age of the beneficiary is nearly that on which the payments commence, or when the period of an endowment assurance is a short one, especially if the assured is young. The margin, proportional to H, will then afford but trifling profits. In my estimation, however, this is no defect of any importance, for though the loading should provide for the expenses of administration of all contracts together, it is not necessary that it should do so in the case of each assurance separately. Likewise it is sufficient if the profit on all contracts together answers the expectation, as, for instance, under the present circumstances life annuities have caused more loss than profit. Indeed it is also Mr. Landré's opinion that the commission for effecting an insurance should not consist of a fixed part of the sum assured, and that rather the character of the contract should be taken into account. The following quotation from page 163 of his manual bears witness of this conviction:

"Companies paying a certain part of the sum assured for commission are forced to choose a different rate for every form of insurance. They pay a smaller commission if a temporary assurance against death or an endowment of short duration has been contracted for than in the case of an assurance covering a longer period, because in the former case a more considerable commission, to be paid in a few years, would render the premium immoderately high. Some companies pay for an assurance of short duration a commission of $1\frac{1}{2}$, 2 or even 3% of the accumulated premiums. If the commission is calculated proportional to the sum assured, then, in the case that an annuity has been contracted, some method must be devised for reducing it in a more or less rational way to the assurance of a capital. When the commission consists of a certain part of the first annual premium, a different method is to be used when the payment is effected at once, or at temporary or variable premiums. The fact that in other cases, for instance, 30% of the first premium is paid for commission cannot be regarded as a reason for paying 30% too in the case of a single premium. A fully consequential way would be to calculate the commission as if in every case invariable annual premiums were to be paid.

"But even this method would lead to injustice. Indeed it would be no fair dealing to allow the agent the same commission for an assurance of 1000 Mk, which probably will have to be paid within 20 years, as for an assurance of the same amount, which probably will never be paid at all. Likewise it would be unjust not to grant a higher commission for an assurance on which an annual premium of 100 Mk will probably be paid during more than 20 years than for another one on which the same premium will not be paid for more than five years."

When this reasoning leads Mr. Landré to the conclusion that the commission to be allowed should be proportional to the original value of the assurance, and that no quantity represents this value better than the single payment for the same assurance, I cannot, however, agree with him. In my estimation it rather induces us to calculate the commission in proportion to the expectation of profit, because, for instance, this quantity is actually much smaller in the case of an endowment payable at the end of a short period than for a similar assurance contract of long running, and consequently will not cause the commission to become unduly high. The single payment for this form of insurance, however, is highest when the endowment is payable after a short period; the method recommended by Mr. Landré would accordingly be of no avail.

It will be granted that in the preceding pages the propriety of a loading proportional to the quantity H, especially for compensating the influence of uncertainty of the basis of calculation, has been sufficiently proved.

If, however, it were esteemed necessary to load the premiums by yet another amount to meet with the initial expenses, the determination of these expenses as a part of the expectation of profit being held practically impossible, the advantages connected with a loading applied according to our method, would no more be lost, as an additional margin necessary for that purpose will in most cases not exceed 1 or 2% of the premiums.

The following pages contain some tables, indicating the part in % of the net premiums by which these must be loaded, to obtain an amount of which the value at the beginning of the assurance is equal to 0.35 H.

The calculation is performed by means of the summation formula of Euler, by which, for instance, in the case of a reversionary annuity, it is rendered possible to proceed by intervals of 5 or 2 years, according to necessity.

We attract the reader's attention to the fact that these tables are founded on the mortality table of Dutch civil service State officials for male, and on that used in the first balance of the official Widows and Orphans fund for female lives. For children's lives has been accepted a table deduced from Dutch official reports by Dr. Turksma. A rate of interest of 3% has been adopted throughout these calculations.

TABLE I.

ASSURANCE AGAINST DEATH.

Age at Entry.	Premiums Payable During Life.	Premiums Payable up to the Age			Single Payment.
		65.	60.	55.	
20.....	12,3	11,6	11,4	11,0	8,6
25.....	11,3	10,7	10,1	9,7	7,6
30.....	11,0	10,0	9,5	9,0	7,0
35.....	10,8	9,6	8,8	8,2	6,4
40.....	10,7	9,1	8,1	7,4	6,0
45.....	10,8	8,5	7,3	6,7	5,4
50.....	10,8	7,7	6,5	5,6	4,9
55.....	10,8	6,5	5,2		4,4
60.....	11,0	5,0			3,8
65.....	11,3				3,3
70.....	11,8				2,8
75.....	12,1				2,2
80.....	12,5				1,8
85.....	12,6				1,4
90.....	12,9				1,0
95.....	13,2				0,7

TABLE II.

ENDOWMENT ASSURANCE.

Age at Entry x.	Maturing at									
	Age x + 5.	Age x +10.	Age x+ 15.	Age x+ 20.	Age x+ 25.	Age x+ 30.	Age x+ 35.	Age x+ 40.	Age x+ 45.	Age x+ 50.
18	0,9	1,6	2,4	3,4	4,4	5,6	6,9	8,2	9,5	10,6
19	0,9	1,6	2,4	3,3	4,3	5,5	6,8	8,1	9,4	10,6
20	0,8	1,4	2,2	3,1	4,1	5,3	6,6	7,9	9,2	10,4
25	0,5	1,1	1,9	2,8	3,9	5,3	6,6	7,9	9,2	
30	0,5	1,2	2,1	3,2	4,5	5,8	7,3	8,7		
35	0,6	1,4	2,5	3,8	5,3	6,8	8,2			
40	0,8	1,8	3,1	4,7	6,3	7,9				
45	1,0	2,3	4,0	5,7	7,5					
50	1,4	3,1	5,0	7,0						
55	1,8	4,0	6,3							
60	2,5	5,2								
65	3,5									

TABLE III.

ANNUITIES.

Age.	Loading in % of the Net Value.	Age.	Loading in % of the Net Value.	Age.	Loading in % of the Net Value.
25	3,63	50	5,80	75	9,70
30	3,89	55	6,35	80	10,47
35	4,24	60	7,05	85	11,11
40	4,67	65	7,90	90	11,52
45	5,19	70	8,82	95	12,16

TABLE IV.

Assurance at annual premiums, the assured being C years of age, of a stipend payable during 4 years, beginning when the beneficiary has reached the age of 14 years. The obligation to pay premiums ceases when the assured dies.

Age at Entry of the Beneficiary.	Age of the Assured (C)								
	20.	25.	30.	35.	40.	45.	50.	55.	60.
0	1,6	1,5	1,7	2,1	2,7	3,6	4,7	6,0	7,3
1	1,6	1,4	1,6	2,0	2,5	3,3	4,3	5,4	6,7
2	1,5	1,3	1,5	1,9	2,3	3,0	4,0	5,1	6,3
3		1,3	1,4	1,7	2,2	2,8	3,7	4,7	6,0
4		1,2	1,3	1,6	2,0	2,6	3,4	4,4	5,6
5		1,1	1,2	1,5	1,8	2,4	3,1	4,1	5,2
6		1,0	1,1	1,3	1,7	2,2	2,9	3,8	4,9
7		0,9	1,0	1,2	1,5	2,0	2,6	3,5	4,5
8			0,9	1,1	1,4	1,8	2,4	3,2	4,1
9			0,8	1,0	1,2	1,6	2,1	2,9	3,7
10			0,7	0,9	1,1	1,4	1,9	2,6	3,3
11			0,6	0,8	0,9	1,2	1,6	2,2	2,9
12			0,5	0,6	0,8	1,0	1,4	1,9	2,5

TABLE V.

Assurance at annual premiums, the assured being C years of age, of a stipend payable during 5 years, beginning when the beneficiary has reached the age of 18 years. The obligation to pay premiums ceases when the assured dies.

Age at Entry of the Beneficiary.	Age of the Assured (C)								
	20.	25.	30.	35.	40.	45.	50.	55.	60.
0	1,4	1,2	1,3	1,6	2,0	2,7	3,6	4,8	6,1
1	1,3	1,1	1,2	1,5	1,8	2,4	3,3	4,3	5,5
2	1,2	1,0	1,1	1,3	1,6	2,2	3,0	4,0	5,0
3		0,9	1,0	1,2	1,5	2,0	2,7	3,6	4,6
4		0,8	0,9	1,1	1,4	1,8	2,4	3,3	4,2
5		0,8	0,8	1,0	1,2	1,6	2,2	3,0	3,8
6		0,7	0,7	0,9	1,1	1,4	1,9	2,6	3,4
7		0,6	0,6	0,8	0,9	1,2	1,7	2,3	3,0
8			0,5	0,6	0,8	1,0	1,4	2,0	2,5
9			0,5	0,5	0,6	0,9	1,2	1,6	2,1
10			0,4	0,4	0,5	0,7	0,9	1,3	1,7
11			0,3	0,3	0,4	0,5	0,7	1,0	1,3
12			0,2	0,2	0,3	0,3	0,5	0,7	0,9

TABLE VI.

LOADING IN % OF THE SINGLE PAYMENT FOR A REVERSIONARY ANNUITY.

Age of the Beneficiary x.	Age of the Assured.						
	x.	x + 5.	x + 10.	x + 15.	x + 20.	x + 25.	x + 30.
$20\frac{1}{2}$	23	22	20	18	16	14	13
$30\frac{1}{2}$	24	22	20	18	16	14	13
$40\frac{1}{2}$	25	22	20	18	15	14	12
$50\frac{1}{2}$	26	24	21	19	17	16	15
$60\frac{1}{2}$	28	26	24	22	22		
$70\frac{1}{2}$	32	31	30				

TABLE VII.

LOADING IN % OF THE ANNUAL PREMIUM FOR A REVERSIONARY ANNUITY.

Age of the Beneficiary x.	Age of the Assured.						
	x.	x + 5.	x + 10.	x + 15.	x + 20.	x + 25.	x + 30.
$20\frac{1}{2}$	25	23	21	19	18	16	15
$30\frac{1}{2}$	24	22	20	18	16	15	14
$40\frac{1}{2}$	24	22	21	19	18	17	16
$50\frac{1}{2}$	25	23	21	19	18	18	16
$60\frac{1}{2}$	26	24	23	21	20		
$70\frac{1}{2}$	27	26	26				

Sometimes it will be of interest to know the monetary value of the loading. To provide for this want the following tables have been composed, containing the expectation of profit H, from which the monetary value of the loading can be deduced by multiplying by 0,35.

TABLE VIII.

EXPECTATION OF PROFIT PRO 1000 OF THE SUM ASSURED.

Assurance Against Death.

Age at Entry.	Premium Payable During Life.	Premiums Payable up to the Age			Single Payment.
		65.	60.	55.	
20.....	107	101	99	96	75
25.....	106	100	95	91	71
30.....	114	104	98	93	73
35.....	124	110	101	94	74
40.....	137	116	104	95	76
45.....	153	121	104	95	77
50.....	169	121	101	87	77
55.....	185	111	89		75
60.....	206	93			72
65.....	231				67
70.....	258				61
75.....	283				52
80.....	306				44
85.....	322				35
90.....	339				27
95.....	358				18

TABLE IX.

EXPECTATION OF PROFIT PRO 1000 OF THE SUM ASSURED.

ENDOWMENT ASSURANCE.

Age at Entry x.	MATURING AT									
	Age x + 5.	Age x + 10.	Age x + 15.	Age x + 20.	Age x + 25.	Age x + 30.	Age x + 35.	Age x + 40.	Age x + 45.	Age x + 50.
18	21,3	35,4	46,1	56,0	65,0	73,5	81,5	88,8	95,5	101,0
19	21,5	33,9	44,4	54,2	63,3	72,0	80,2	87,9	94,6	100,3
20	18,9	30,5	40,9	50,7	60,1	69,1	77,6	85,5	92,6	98,3
25	12,3	24,2	35,5	46,7	57,7	68,5	78,7	87,7	95,3	
30	13,3	26,5	39,5	52,7	65,9	78,6	90,0	99,6		
35	15,3	31,0	46,7	63,1	79,0	93,6	105,9			
40	18,8	38,5	58,6	78,8	97,1	113,0				
45	24,9	50,6	76,2	99,8	120,3					
50	33,9	66,9	98,1	125,3						
55	45,3	87,1	125,0							
60	61,4	116,0								
65	87,9									

TABLE X.

ANNUITIES.

Age.	Expectation of Profit on 100 of Annual Rent.	Age.	Expectation of Profit on 100 of Annual Rent.	Age.	Expectation of Profit on 100 of Annual Rent.
25	239	50	258	75	175
30	243	55	249	80	146
35	248	60	238	85	118
40	254	65	222	90	88
45	257	70	201	95	59

TABLE XI.

EXPECTATION OF PROFIT PRO 100 OF ANNUAL RENT.

Assurance at annual premiums, the assured being C years of age, of a stipend payable during 4 years, beginning when the beneficiary has reached the age of 14 years. The obligation to pay premiums ceases when the assured dies.

Age at Entry of the Beneficiary.	AGE OF THE ASSURED (C)								
	20.	25.	30.	35.	40.	45.	50.	55.	60.
0.....	6,3	5,5	6,1	7,4	9,3	12,3	16,7	22,3	28,3
1.....	7,9	6,7	7,4	8,9	11,1	14,6	19,8	26,6	33,6
2.....	8,2	6,8	7,5	9,0	11,1	14,7	19,9	26,8	33,9
3.....		6,6	7,3	8,7	10,7	14,2	19,1	26,1	33,0
4.....		6,3	6,9	8,3	10,2	13,5	18,2	24,9	31,5
5.....		5,9	6,5	7,8	9,5	12,5	16,9	23,2	29,7
6.....		5,5	6,0	7,1	8,8	11,6	15,6	21,5	27,5
7.....		5,1	5,4	6,4	7,9	10,4	14,1	19,4	25,1
8.....			4,8	5,6	6,9	9,1	12,4	17,3	22,4
9.....			4,2	4,8	5,9	7,9	10,7	14,9	19,4
10.....			3,5	4,0	4,9	6,4	8,8	12,3	16,2
11.....			2,7	3,1	3,8	5,0	6,8	9,6	12,6
12.....			1,9	2,1	2,6	3,4	4,7	6,6	8,7

TABLE XII.

EXPECTATION OF PROFIT PRO 100 OF ANNUAL RENT.

Assurance at annual premiums, the assured being C years of age, of a stipend payable during 5 years, beginning when the beneficiary has reached the age of 18 years. The obligation to pay premiums ceases when the assured dies.

Age at Entry of the Beneficiary.	Age of the Assured (C)								
	20.	25.	30.	35.	40.	45.	50.	55.	60.
0.....	8,3	7,5	8,5	10,5	13,4	17,7	23,2	29,5	35,9
1.....	10,4	9,3	10,6	12,4	16,4	21,4	27,9	35,7	44,0
2.....	10,9	9,7	10,9	13,4	16,8	21,9	28,5	36,6	45,6
3.....		9,6	10,8	13,2	16,6	21,5	28,2	36,4	45,7
4.....		9,4	10,5	12,9	16,1	20,9	27,4	35,8	45,2
5.....		9,2	10,2	12,4	15,5	20,1	26,4	34,6	44,2
6.....		8,8	9,8	11,8	14,8	19,2	25,2	33,4	42,8
7.....		8,5	9,2	11,1	13,9	18,2	23,9	31,8	41,1
8.....			8,7	10,4	13,0	17,0	23,1	30,1	39,1
9.....			8,1	9,7	12,0	15,7	21,0	28,1	36,7
10.....			7,5	8,8	10,9	14,4	19,3	26,0	34,0
11.....			6,7	8,0	9,7	12,9	17,4	23,6	31,0
12.....			6,0	7,0	8,5	11,3	15,4	21,2	27,7

TABLE XIII.

EXPECTATION OF PROFIT PRO 100 OF ANNUAL RENT.

Reversionary Annuity at a Single Payment.

Age of the Beneficiary x.	Age of the Assured.						
	x.	x + 5.	x + 10.	x + 15.	x + 20.	x + 25.	x + 30.
$20\frac{1}{2}$	229	251	274	299	330	359	385
$30\frac{1}{2}$	242	274	307	341	372	403	427
$40\frac{1}{2}$	261	298	339	387	420	451	480
$50\frac{1}{2}$	277	323	367	412	456	497	549
$60\frac{1}{2}$	279	335	388	438	512		
$70\frac{1}{2}$	265	337	395				

TABLEX IV.

EXPECTATION OF PROFIT PRO 100 OF ANNUAL RENT.

Reversionary Annuity at Annual Premiums.

Age of the Beneficiary x.	Age of the Assured.						
	x.	x + 5.	x + 10.	x + 15.	x + 20.	x + 25.	x + 30.
$20\frac{1}{2}$	237	259	285	315	360	410	465
$30\frac{1}{2}$	242	276	313	354	408	466	528
$40\frac{1}{2}$	254	299	353	416	477	548	618
$50\frac{1}{2}$	267	318	369	420	492	563	606
$60\frac{1}{2}$	257	311	369	431	492		
$70\frac{1}{2}$	224	276	346				

RÉSUME.

SUR UNE METHODE RATIONNELLE D'ÉVALUER LE CHARGEMENT.

Par le Dr. J. H. Peek.

L'avantage d'une méthode rationnelle d'évaluer le chargement. Á quel but le chargement doit servir. Méthodes pratiques pour déduire le chargement pour une certaine forme d'assurance de celle d'une forme connexe.

La partie d'une prime qui peut être considérée comme une mise en dépôt, ne doit pas être chargée.

Actuellement le chargement, consciemment ou non, est souvent mis en relation avec le risque à courir. L'espérance mathématique de profit peut être considérée comme une mesure du risque à courir.

Thèse I. L'espérance mathématique de profit pour la compagnie est égale à celle de l'assuré.

Thèse II. Lorsque le chargement est mis proportionnel à l'espérance mathématique de profit, la valeur de la prime d'assurance ordinaire sur la vie et de tout autre paiement, qui peut être regardé comme une mise en dépôt n'est pas chargée.

Thèse III. Un chargement proportionnel à l'espérance mathématique de profit procrée la continuité des différents tarifs.

Thèse IV. Un chargement proportionnel à l'espérance mathématique de profit est cause, que la valeur des paiements des assurés est surpassée par la valeur des paiements qui sont déjà faits ou encore à faire par la compagnie aux assurés, dans le cas où l'événement le plus favorable se à l'assuré realise.

Formules pour le calcul de l'espérance mathématique de profit dans les cas suivants:

Assurance en cas de mort,
Rente de survie (ou pension de veuve),
Assurance en cas de vie,
Assurance mixte,
Assurance de salaires.

La commission devrait être proportionnelle à l'espérance mathématique de profit.

Tables numériques des surprimes en % des primes nettes et de l'espérance mathématique de profit dans les cas cités ci-dessus.

KURZE NOTIZ.

ÜBER EINE RATIONELLE METHODE DER BERECHNUNG DES ZUSCHLAGS.

Von Dr. J. H. Peek.

Die Vortheile einer vernünftigen Zuschlags-Methode. Welchem Zwecke hat der Zuschlag zu dienen? Praktische Methoden zur Herleitung des Zuschlags einer bestimmten Versicherungs-Form von dem einer verwandten Art.

Auf den Theil einer Prämie, welcher nur als eine Kapitals-Anlage zu betrachten ist, soll kein Zuschlag gelegt werden.

Thatsächlich ist der Zuschlag bewusst oder nicht bewusst mit dem betreffenden Risiko in Verbindung gebracht. Die mathematische Hoffnung des Gewinns mag als Maassstab für das betreffende Risiko angesehen werden.

1. These. Die mathematische Hoffnung des Gewinns für die Gesellschaft ist gleich der für den Versicherten.

2. These. Wenn der Zuschlag im Verhältnis zu der mathematischen Hoffnung des Gewinns angenommen ist, so bleibt der Classen-Werth einer einzigen Prämie für eine gewöhnliche Lebens-Versicherung und aller anderen Zahlungen, die nur als Kapitals-Anlage zu betrachten sind, frei von Zuschlag.

3. These. Der Zuschlag im Verhältnis zu der mathematischen Hoffnung des Gewinns bewirkt eine Stetigkeit der verschiedenen Tarife.

4. These. Ein Zuschlag im Verhältnis zu der mathematischen Hoffnung des Gewinns bewirkt, dass der Werth der Zahlungen der Versicherten von den Werthen

der Zahlungen, welche den Versicherten von der Gesellschaft gemacht sind oder gemacht werden müssen, im Falle das dem Versicherten günstigste Ereigniss eintritt, überstiegen wird.

Formeln für die Berechnung der mathematischen Hoffnung des Gewinns bei folgenden Versicherungs-Arten:

Versicherung auf den Todesfall,
Ueberlebens-Renten-Versicherung (Wittwenpensionsversicherung),
Versicherung auf den Erlebensfall,
Gemischte Versicherung,
Salairen-Versicherung.

Die Provision sollte im Verhältnis zu der mathematischen Hoffnung des Gewinns stehen.

Zahlen-Tabellen des Zuschlags in Prozenten der Netto-Prämien und der mathematischen Hoffnung des Gewinns in oben erwähnten Fällen.

DIE VERSCHIEDENEN SYSTEME DER VERSICHERUNG VON GESCHWÄCHTEN LEBEN IN DEUTSCHLAND.

Von A. Gunckel,

Direktor der Vaterländischen Lebensversicherungs-Aktiengesellschaft (Elberfeld), Mitglied des Deutschen Vereins für Versicherungs-Wissenschaft.

Die Versicherung geschwächter Leben und ihre Entwickelung in Deutschland kann nur richtig gewertet werden, wenn die für Aufnahme und Sicherstellung derselben massgebend gewesenen Erwägungen und Beschränkungen voll beachtet werden. Schon im Jahre 1878 unternahm es die für diesen Versicherungszweck besonders gegründete Allgemeine Lebensversicherungs-Anstalt zu Leipzig als Gegenseitigkeits-Gesellschaft, auf Grundlage eines einzigen Tarifes, dessen Prämien die sonst üblichen Sätze ungefähr um 11% überschritten, „Personen, welche die Kapitalversicherung auf den Todesfall bei einer anderen Gesellschaft nicht erlangen können, vermöge ihres Gesundheitszustandes jedoch die Hoffnung auf eine mittlere Lebensdauer noch zulassen," Aufnahme zu gewähren. Die Begründer dieser Anstalt gingen von der richtigen Voraussetzung aus, dass es eine humane Aufgabe sein müsse, demjenigen Teile der nach Hunderttausenden zählenden Antragsteller, die alljährlich die Zurückweisung ihrer Todesfall-Versicherungsanträge erfahren müssen — es waren auch schon damals 1 Fünftel bis 1 Viertel aller Antragsteller — nach Möglichkeit noch eine Todesfallversicherung zu bieten, wenn auch zu erhöhten Prämien und mit dem Zwange einer Nachschusszahlung, im Falle die Mittel der Anstalt für die Vollzahlung ihrer Schadenfälle nicht hinreichten. Leider aber hatten die Gründer der Anstalt nicht beachtet, dass der geringe Prämienzuschlag ihnen nur gestattete, denjenigen kleinen Teil der Abgelehnten aufzunehmen, die infolge körperlicher Missbildung, wie Kyphose, Struma, Pectus carinatum, oder durch ihre Familien-Sterblichkeit über das normale Mass belastet waren, oder in deren eigener Anamnese erschwerende Umstände für die normale Aufnahme vorlagen, oder endlich solche, deren Berufsgefahr eine erhebliche war, wie bei Steinmetzen, Bergleuten, Feilenhauern, Glasbläsern oder Arbeitern in Fabriken mit explosiblen oder giftigen Stoffen, in chemischen Fabriken, Schleifereien, Blei- und Zinkhütten, die aber jedenfalls zur Zeit der Aufnahme noch normale Körperbeschaffenheit erweisen mussten. Damit schieden für die Anstalt alle jene zahlreichen Abgelehnten aus, deren Zustand bei der Antragstellung vorhandene oder beginnende schwere Erkrankungen, wie Tuberkulose, Herzfehler, Ohrenerkrankung, Nieren-, Blasen-, geschlechtliche und Rückenmarks-Krankheiten, Zuckerharnruhr erkennen oder Anlage zu diesen Leiden vermuten liess. Da die Anstalt auf diese Art nur langsam und trotz hoher Anwerbekosten einen bescheidenen Geschäftsumfang erlangen konnte, verfiel sie in den Fehler, mit erleichterten Aufnahmebedingungen auch zweifelhafte Risiken ohne weitere Prämienerhöhung aufzunehmen, was sie schon 1881 dazu brachte, infolge grosser Verluste ihre Liquidation beschliessen zu müssen.

Der gleiche humane wie Eingangs geschilderte Beweggrund neben der immer mehr hervortretenden wissenschaftlichen Forderung, auf

gangbarem Wege zu einer Beobachtung des Sterblichkeitsverlaufes wenigstens bei dem erreichbaren Teile der Abgelehnten zu gelangen, bewog 1892 die Lebensversicherungs-Aktien-Gesellschaft Nordstern in Berlin, die Versicherung anormaler Leben in ihren Geschäftsplan aufzunehmen. Sie führte dafür auch nur einen Tarif und zwar den der alternativen oder abgekürzten Kapitalversicherung (assurance mixte) ein, ohne eine Erhöhung ihrer für normale Leben üblichen Prämien vorzunehmen.

Erfolgt bei dieser Kombination das Ableben des Versicherten vor Ablauf der vereinbarten Versicherungsdauer, so wird die auf die Versicherung angesammelte volle Prämienreserve zahlfällig, während für den dadurch nicht gedeckten Teil der Versicherungssumme in dem auf das Sterbejahr folgenden Monat Mai diejenige Quote gezahlt wird, die sich aus dem Verhältnis der wirklich eingetretenen zu der rechnungsmässig erwarteten Sterblichkeit der Abteilung für geschwächte Leben ergiebt. Ausserdem gewährt der Nordstern mit dieser Schlussquote den dieser Abteilung entspringenden Gewinnanteil, mit $3\frac{1}{2}\%$ aufgezinst und in fünfjährigen Perioden zur Vermehrung der Versicherungssumme kapitalisiert, soweit diese Gewinnanteile nicht zur Deckung ausserordentlicher Verluste an Kriegsschäden oder für sonstige Bedürfnisse bereits verwendet werden mussten. Der Nordstern beziffert diesen Gewinnanteil auf durchschnittlich 12% jährlich.

Im Jahre 1893 nahm auch die Vaterländische Lebensversicherungs-Aktien-Gesellschaft in Elberfeld die Versicherung durch Errichtung einer besonderen Geschäftsabteilung für anormale Leben mit einem einzigen Tarife auf, dessen Prämien dieselben waren, wie die der abgekürzten Todesfallversicherung. Diese Gesellschaft ging in der Schadenzahlung in zwei Punkten weiter als der Nordstern. Sie zahlt, solange die Prämienreserve der den Schaden herbeiführenden Versicherung noch nicht 50% der versicherten Summe beträgt, nach dem Ableben des Versicherten die halbe versicherte Summe, ausserdem zugleich den aufgesammelten und mit $3\frac{1}{2}\%$ aufgezinsten oder bereits kapitalisierten Gewinnanteil. Diese Kapitalisierung findet von 5 zu 5 Jahren statt. Über den weiter schwebenden Anspruch auf die zweite Hälfte der Versicherungssumme entscheidet die Höhe des zur Verteilung stehenden Jahresüberschusses der besonderen Abteilung für anormale Leben; diese Verteilung darf niemals mehr als zuzüglich der vorher gezahlten Hälfte die Summe des versicherten Kapitals, vermehrt um den fällig gewordenen Gewinnanteil, betragen. Die Auszahlung der Restschadenquote findet im Mai des auf den Schadenfall folgenden Jahres statt. Der Gewinnanteil der Elberfelder beziffert sich durchschnittlich auf 10% der Jahresprämie.

Als dritte Gesellschaft nahm die deutsche Lebensversicherungsbank Arminia in München 1893 die Versicherung abgelehnter Leben mit einem besonderen Tarif für abgekürzte Versicherung auf, dessen Prämien gegen die ihrer normalen Tabelle um 11 bis 16% erhöht sind. Sie wich in ihren Auszahlungsbestimmungen in einigen Punkten von ihren Vorgängern ab, indem sie die volle Versicherungssumme zusagt, wenn die Versicherung beim Tode des Versicherten 15 Jahre in Kraft war, ferner jederzeit dann, wenn der Tod des Versicherten durch einen Unfall herbeigeführt wurde. Liegt keiner dieser beiden Fälle vor, so verfährt sie so wie die Elberfelder Gesellschaft, nur mit der Abweichung, dass sie die Gewinnanteile nur mit $3\frac{1}{2}\%$ verzinst, sie also nicht, wie die Elberfelder, dazu benutzt, dieselben von 5 zu 5 Jahren als einmalige Einzahlungen zur Erhöhung des Versicherungskapitals umzurechnen.

Die Arminia giebt in ihren Berichten keine besonderen Abrech-

nungen über ihr Geschäft mit Versicherungen abgelehnter Leben, hat auch bisher keinen Gewinnanteil dafür bekannt gegeben.

Als vierte Gesellschaft folgte mit der Aufnahme einer besonderen Abteilung für geschwächte Leben die Magdeburger Lebens-Versicherungs-Gesellschaft im Jahre 1894. Auch sie behielt als Tarif hierfür die für ihre normale abgekürzte Todesfallversicherung gültigen Prämien bei; sie zahlt im Falle des Todes vor Ablauf der Versicherung, solange die Prämienreserve nicht 50% der versicherten Summe beträgt, die halbe Versicherungssumme, daneben aber keinen Gewinnanteil. Der Rest wird nach Fertigstellung des Jahresabschlusses für das Sterbejahr voll oder je nach Verhältnis der in der besonderen Abteilung dazu vorhandenen Deckungsmittel unter Zuhilfenahme des aus den Gewinnüberschüssen gebildeten Sicherheitsfonds in herabgesetztem Betrage gezahlt. Ausser der Versicherungssumme erhalten nur diejenigen Versicherten aus dem Sicherheitsfonds einen im Verhältnis ihrer Versicherungssumme zur Gesamtsumme der vorhandenen Prämienreserve ihrer Abteilung berechneten Gewinnanteil, welche den Ablauf ihrer Vertragsdauer erleben.

Die nachfolgende Tabelle zeigt, welche Fortschritte die Versicherung geschwächter Leben bei den genannten 4 Gesellschaften gemacht hat. Es hatten versichert zu Ende

	Nordstern		Elberfelder		Arminia		Magdeburger		Zusammen	
	Zahl	Summe M.	Zahl	Summe M.	Zahl	Summe M.	Zahl	Summe M.	Zahl	Summe M.
1892	377	2,367,812	....	.....	....	.....	....	.....	377	2,367,812
1893	605	3,864,810	56	263,500	*	.....	....	.....	661	4,128,310
1894	709	4,376,271	112	644,500	....	.....	265	1,180,000	1,086	6,200,771
1895	776	4,654,565	146	822,667	192	615,550	553	2,443,500	1,667	8,536,282
1896	847	5,111,043	151	888,167	259	741,400	821	3,687,200	2,078	10,427,810
1897	959	5,752,158	171	947,167	302	863,870	1,027	4,487,000	2,459	12,050,195
1898	1,079	6,374,811	187	1,074,941	329	922,980	1,140	5,030,300	2,735	13,403,032
1899	1,172	6,961,816	203	1,138,105	376	1,051,975	1,259	5,645,200	3,010	14,797,096
1900	1,208	7,118,080	231	1,230,819	419	1,169,035	1,404	6,447,000	3,262	15,964,934
1901	1,311	7,771,168	230	1,262,075	433	1,233,125	1,517	7,018,300	3,491	17,274,668
1902	1,396	8,266,154	262	1,442,713	479	1,367,952	1,679	7,809,500	3,816	18,886,319

* Die Arminia sonderte ihren Bestand an Versicherungen geschwächter Leben erst 1895 aus ihrem Gesamtbestande aus.

Die weiter folgende Übersicht zeigt, wie viele Personen in den Jahren 1892-1902 bei allen 4 Gesellschaften zusammen rechnungsmässig sterben konnten und wie viele wirklich gestorben sind.

Die vorstehenden beiden Tabellen lassen erkennen, dass wir in Deutschland gegenüber den jährlich mehr als 30,000 Personen betreffenden Ablehnungen noch weit von einer befriedigenden Lösung der Frage der Versicherung geschwächter Leben entfernt sind. Alle Anregungen, die seit den Jahren nach 1875

a) durch *George Humphreys* über die Ergebnisse der Versicherungsgesellschaft Eagle in Bezug auf ungesunde Leben und deren Sterblichkeitsverhältnisse, veröffentlicht im Vereinsblatt für deutsches Versicherungswesen, 1875;

b) durch Dr. *Eduard Buchheim,* Chefarzt des Ersten Allgemeinen Beamten-Vereins der österr.-ungar. Monarchie, in „Das Prinzip der Auslese und die Versicherungsfähigkeit der Masse." veröffentlicht im Assekuranz-Jahrbuch von Ehrenzweig, Wien 1883;

1892–1902

Alter der beobachteten Personen Jahre	Der Sterbegefahr waren ausgesetzt Personen	Rechnungsmässig konnten sterben Personen	Gestorben sind		Gegen die rechnungsmässige Erwartung sind gestorben Personen	
			Personen	In % der lebenden unter Risiko	Mehr	Weniger
–25	1,284	11.852	7	0.545	.....	4.852
26–30	4,291.5	37.86	25	0.583	.....	12.86
31–35	5,978	57.601	41	0.686	.....	16.601
36–40	5,111	57.194	53	1.037	.....	4.194
41–45	3,274	43.96	45	1.374	1.04	
46–50	1,723.5	27.558	30	1.741	2.442	
51–55	731	14.58	21	2.873	6.42	
56–60	205.5	5.757	8	3.893	2.243	
61–65	55.5	1.76	2	3.604	0.24	
Ueber 66	8.5	0.12	..	.....	.....	0.12
Zusammen	22,662.5	258.242	232	1.024	12.385	38.627
Weniger						26.242 Personen.

c) durch *Franz Karl Lukas,* „Die Versicherung minderwertiger Leben vom Standpunkte der statistischen Untersuchung," veröffentlicht im Assekuranz-Jahrbuch von Ehrenzweig, Wien 1896, gegeben worden sind, wurzelten in dem Grundgedanken, der Todesfallversicherung eine weitere Ausdehnung zu geben, indem versucht werden müsse, durch Einführung bestimmter Prämienzuschläge oder erhöhter Prämientarife Personen mit gichtischer Beanlagung, von allgemeiner Körperschwäche, mit erblicher Belastung, mit Neigung zu Erkrankungen der Atmungs- und Zirkulationsorgane, des Verdauungsapparates, des Nervensystems, fettleibige und unmässige Personen aufnahmefähig zu machen. Die beiden letzten Verfasser mussten aber auch anerkennen, dass man sich bei der *a priori*-Einschätzung in Gefahrenklassen auf zu viele schwankende und in der Beurteilung auseinandergehende Faktoren, nicht nur bei den Vertrauensärzten, sondern auch bei Agenten, Beamten und Versicherungsnehmern, die hierbei noch mehr als bei Normalrisiken einem ungesunden Optimismus verfallen möchten, stützen müsse.

Erwägt man trotzdem, welcher Weg gangbar ist, um die Versicherung geschwächter Leben mit den für die Erfüllung der übernommenen Pflichten erforderlichen Sicherheiten zu betreiben, so wäre zu wünschen, dass alle Gesellschaften ein dem von den 4 Gesellschaften Nordstern, Vaterländische, Arminia und Magdeburger eingeschlagenen ähnliches Verfahren aufnähmen, damit man so baldmöglich zu Sterblichkeitstafeln käme, aus denen die verschiedenen Einflüsse, von denen die Sterblichkeit geschwächter Leben abhängt, bemessen werden könnten.

Inzwischen hat auch die Lebens- und Pensionsversicherungs-Gesellschaft Janus, Hamburg, 1902 die Versicherung anormaler Leben aufgenommen; das von ihr zur Verfügung gestellte Material war jedoch nicht hinreichend, um es noch hier mit in die Betrachtung ziehen zu können.

Die Beobachtung der Aufnahmepraxis bei einer grossen Anzahl der deutschen Gesellschaften ergiebt jedoch leider, dass sie schon jetzt, ohne in die getrennte Beobachtung geschwächter Leben durch Schaffung besonderer Abteilungen einzutreten, die geschwächten Leben, die noch relativ gesund sind, zusammen unter ihren normalen Versicherten ent-

weder mit starker Abkürzung der Versicherungsdauer oder mit zum Teil sehr erheblichen Zuschlagsprämien oder zu überhaupt stark erhöhten Prämientarifen versichern. Es wäre anzustreben, die so verfahrenden Gesellschaften im Interesse einer umfassenden Beobachtung dazu zu bringen, Register- oder Zählkarteneinrichtungen zu schaffen, welche die Grundlagen für eine für diese Risiken gesonderte Sterblichkeitsbeobachtung ergeben.

Nachdem von der Friedrich Wilhelm, Lebens- und Garantie-Versicherungs-Aktien-Gesellschaft in Berlin, auch die Todesfallversicherung bis zum Betrage von 10,000 Mark ohne ärztliche Untersuchung eingeführt worden ist, darf auch von dieser Gesellschaft angenommen werden, dass sie damit dem besseren Teile der anormalen Leben Versicherung gewähren wird. Leider wird aber durch die Versicherung ohne ärztliche Untersuchung die Grenze zwischen normalen und anormalen Risiken immer mehr verwischt, was im Interesse der Sterblichkeits-Beobachtung zu bedauern ist.

Aus der oben geschilderten Änderung der Aufnahmegrenzen ergeben sich auch die auf der Hand liegenden Gefahren, die der Gründung neuer Gesellschaften für die Todesfallversicherung geschwächter Leben drohen. Wollte man, was ja auch denkbar wäre, eine gemeinsame Verbandsversicherung unter der Mehrzahl der Gesellschaften schaffen, so zwar, dass jede Gesellschaft ihre Versicherungen geschwächter Leben einer dafür geschaffenen Zentrale zur gemeinsamen Verwaltung für Rechnung aller beteiligten Gesellschaften zuführen müsste, so würde sich dabei alsbald die erhebliche Meinungsverschiedenheit darüber ergeben, wo der Begriff des normalen Risiko aufhören und der des geschwächten Risiko beginnen solle. Jede dafür gezogene Grenze würde zahlreiche die Harmonie störende Streitigkeiten herbeiführen. Auch wäre es wahrscheinlich, dass, sobald etwa der Verband zufriedenstellende Erfolge zeitigen würde, bei der Mehrzahl seiner Teilhaber die Neigung hervortreten möchte, den besseren Teil der sonst zugeführten Risiken in eigener Verwaltung zu behalten, dem Verbande also nur die bedenklichsten Leben zu überweisen.

Dem Verbande würde damit für seine Sterblichkeitsbeobachtungen das dazu hinreichende Material entzogen und nach aller Voraussicht auch seine Existenz durch erhebliche Verluste bedroht sein.

ABSTRACT.

THE DIFFERENT SYSTEMS OF INSURANCE OF INVALIDS.

By A. Gunckel.

The author begins with an historical review, speaking of the conditions of the "Universal Life Insurance Company," founded in 1878 in Leipzig and liquidated in 1881, and touching upon the reasons which caused the failure of the company, as it was restricted only to the insurance of rejected lives.

Then the organizations of the following four companies are described: "Nordstern" Life Insurance Stock Company in Berlin, "Vaterländische" Life Insurance Stock Company in Elberfeld, Germany, Life Insurance Bank "Arminia" in Munich and "Magdeburger" Life Insurance Company in Magdeburg. These are the four companies which have been founded since 1892 for the insurance of invalids. Almost all these organizations start with the normal premium of short alternative insurances (*Assurances mixtes*—mixed insurances) and endeavor to guard against a too high mortality and avoid losses by first retaining half of the insurance money or a sum which is not covered by the premium reserves, of which amounts, if at the making up of the yearly statement at the beginning of the next following business year the mortality during the past year is unfavorable, only such quota is paid as the surplus of the department of insurance of invalids allows.

Further a summary is given by tables of the business done during the last ten years, also of the deaths and such figures as are essential for the statement of the deviation of the actual mortality from the calculated deaths. As these figures of observations are of too small a value to derive therefrom the desired table of invalid mortality, the author gives the advice that most of the companies which carry on insurances in case of death should establish separate departments for invalid lives, such as the above mentioned four companies have them, because only in that way is it possible to obtain a mortality table which comprises a larger number of persons than the table M/W 2 made up by Zillmer from the experiences of 23 German Companies.

RÉSUMÉ.

LES DIFFÉRENTS SYSTÈMES D'ASSURANCE POUR LES INFIRMES.

Par A. Gunckel.

L'auteur entame son sujet par une revue historique où il parle de la "Compagnie Universelle d'Assurance sur la vie avec Réciprocité" qui fondée à Leipzig en 1878 était, dès 1881, mise en liquidation. L'auteur attribue les raisons de cette ruine rapide au fait que la compagnie ne faisait des affaires qu'avec des personnes qui avaient été rejetées par d'autres compagnies. Il passe en revue l'organisation de 4 compagnies suivantes:

"Nordstern" Lebensversicherungs-Aktien-Gesellschaft de Berlin,
"Vaterländische" Lebensversicherungs-Aktien-Gesellschaft de Elberfeld,
Deutsche Lebensversicherungs-Bank "Arminia" de Munich,
"Magdeburger" Lebensversicherungs-Gesellschaft de Magdeburg.

Ce sont les compagnies qui ont été fondées durant ces dix dernières années pour l'assurance d'infirmes. Presque toutes ces organisations prennent comme point de départ la prime ordinaire d'assurances mixtes et s'efforcent de se garer contre une mortalité, qui peut être trop forte et causer des pertes, en détenant dès le début la moitié de l'assurance sur les sommes qui ne sont pas couvertes par des réserves de Primes. Si d'après la balance annuelle établie au commencement de l'année d'affaires suivante, la mortalité durant l'année écoulée s'est trouvée dépasser les prévisions on ne paie sur ces sommes que la quotité permise par le surplus disponible de la division des assurances pour les infirmes.

L'auteur donne, au moyen de tables, un sommaire des affaires faites durant ces dix dernières années, ainsi que les cas de décès et tels chiffres qui sont essentiels pour trouver la déviation de mortalité par le calcul du plus ou moins de décès. Comme ces chiffres d'observation ont trop peu de valeur pour qu'on puisse en dériver des tables de décès de personnes infirmes l'auteur est d'avis que la plupart des compagnies qui assurent sur la vie devraient, comme ces quatre compagnies, établir des divisions pour les infirmes parceque c'est la seule manière d'obtenir des tables mortalité qui comprennent un plus grand nombre de cas que la table M/W 12 établie par Zillmer d'après les expériences de 23 compagnies allemandes.

ÜBER DIE HERSTELLUNG VON INVALIDEN-STERBE-TAFELN.

Von Dr. J. Eggenberger (München),
Mitglied des Deutschen Vereins für Versicherungs-Wissenschaft.

In der 3. Sitzung des III. Internationalen Aktuar-Kongresses in Paris (1900) wurde nach umfangreicher Beratung über die Invaliditäts-Frage, in der zum Teil sehr divergente Anschauungen zum Ausdruck kamen, von Herrn Maluquer y Salvador (Madrid) zu Händen des Organisations-Komitees für den IV. Kongress in New York folgender Antrag, der einstimmige Aufnahme fand, gestellt:

> „In jedem Lande sind ein oder mehrere Referenten zu bezeichnen, um Invaliditäts-Sterblichkeitstafeln herzustellen, damit der nächste Kongress imstande ist, die Invaliditäts-Frage praktisch zu studieren."

In Deutschland hat nun in jüngster Zeit die neugegründete Fachabteilung für Versicherungsmathematik des Deutschen Vereins für Versicherungswissenschaft zur Invaliditäts-Frage Stellung genommen und die Konstruktion von Invaliditäts-, wie Invaliden-Sterblichkeits-Tabellen als ersten Punkt auf sein Arbeits-Programm genommen. Da aber diese Arbeiten vor Beginn des New Yorker Kongresses keineswegs ihren Abschluss finden können, hat der Ausschuss der Abteilung den Schreibenden mit der Bearbeitung des Referates, das nach gegebener Sachlage sich im wesentlichen zu einem historischen Streifzug in das bezügliche Gebiet gestalten wird, beauftragt.

Die Invaliditäts-Versicherung ist in Deutschland in grösserem Massstabe, jedoch in primitiver Form, schon längst von den Knappschaftsvereinen und den Hilfskassen des Eisenbahnpersonals betrieben worden. Das Verdienst, die Invaliditäts-Versicherung erstmals in die versicherungstechnische Erörterung gezogen zu haben, gebührt unstreitig den hervorragenden Versicherungsmathematikern Dr. *August Wiegand*, technischer Direktor der Leb.-Vers.-Ges. „Iduna" in Halle, und Dr. *Carl Heym*. Ersterer veröffentlichte schon 1858 die Schrift: „Mathematische Grundlagen der Eisenbahnpensionskassen" (Halle) und letzterer gab 1863 sein Büchlein: „Die Kranken- und Invaliden-Versicherung" (Leipzig) heraus, in welchem mit Hülfe von hypothetischen Invaliditäts-Wahrscheinlichkeiten die Barwerte und Prämien für die Invaliden-Versicherung berechnet werden. Dabei verwendet Dr. Heym für die Invaliden-Sterblichkeit — die er nach einer Bemerkung (Seite 51) niedrig, nämlich auf durchschnittlich etwa 3% schätzt — die von ihm aus den sächsischen Bevölkerungs- und Totenlisten konstruierte und in Masius' Rundschau, Band V, zuerst publizierte Mortabilitätstabelle. Heym fühlt indessen sehr wohl den Mangel au zutreffenden statistischen Grundlagen. Hiefür gibt der fettgedruckte Schlusssatz seiner Abhandlung beredtes Zeugnis: „Schliesslich richten wir noch an alle diejenigen, welche Einfluss auf die Verwaltung der bereits bestehenden Invalidenkassen haben oder gewinnen können, die Bitte, in ihren Kreisen dahin streben zu wollen, dass man eine rationelle Statistik, also unter Berücksichtigung des Alters,

einrichte, und dass man die gewonnenen Resultate nach gewissen Zeiträumen veröffentliche, um endlich auch diesen wichtigen Versicherungszweig aus dem unsicheren Gebiete der Hypothese herauszureissen und ihm eine feste, auf ausgedehnten Beobachtungen ruhende Grundlage zu verschaffen."

Dieses Ziel, die Herstellung von statistischen Grundlagen aus der Eisenbahnpersonal-Statistik, verfolgte sodann mit ausserordentlicher Beharrlichkeit und Energie Dr. *August Wiegand,* indem er sich zunächst mit einem Exposé an das preussiche Statistische Bureau, sowie an den Internationalen Statistiker-Kongress in Florenz (1867) und später — und zwar mit positivem Erfolge — an die zuständigen Ministerien der einzelnen deutschen Bundesstaaten wandte, worauf sich dann auch der Verein deutscher Eisenbahn-Verwaltungen durch Veranstaltung einer planmässigen statistischen Enquete der Sache annahm (siehe Dr. A. Wiegand: Die Mortabilitäts- und Invaliditäts-Statistik bei Eisenbahn-Beamten. Aktenmässige Darstellung der darauf bezüglichen Operationen. Halle 1869). Die zu versicherungstechnischen Zwecken verarbeiteten Ergebnisse jener Statistik aus den Jahren 1868-69 sind von Dr. Wiegand im „Journal des Kollegiums für Lebens-Versicherungs-Wissenschaft zu Berlin," Band II, S. 67 u. ff., veröffentlicht worden. Dr. Wiegand gibt darin schon eine klare Darstellung von den Faktoren, worauf es bei der Invaliditäts-Versicherung ankommt, nämlich:

1) Die Zahl der unter einjähriger Beobachtung gestandenen aktiven Mitglieder;

2) die Zahl der im Laufe eines Jahres gestorbenen aktiven Mitglieder;

3) die Zahl der im Laufe eines Jahres invalid gewordenen Mitglieder;

4) die Zahl der unter einjähriger Beobachtung gestandenen Invaliden; und

5) die Zahl der im Laufe eines Jahres gestorbenen Invaliden.

Er betont darin zum erstenmal die Notwendigkeit einer besonderen Untersuchung über die Sterblichkeit der Invaliden. Hierüber sagt er wörtlich (Seite 77):

„Das *allerdringendste Bedürfnis* für Eisenbahn-Pensionskassen und überhaupt alle Invaliden-Pensionskassen ist eine *Sterblichkeitstafel für Invaliden.* Die zur Herstellung einer solchen zu Gebote stehenden statistischen Aufzeichnungen sind freilich noch lange nicht umfassend genug, um daraus ein Sterblichkeitsgesetz herzuleiten, gleichwohl habe ich den Versuch gemacht, aus den Erfahrungen bei sämtlichen Eisenbahnbeamten eine Sterblichkeitstafel für Invaliden zu konstruiren."

Interessant sind auch Wiegand's Bemerkungen zu den von ihm berechneten Leibrenten-Werten für die Invaliden: „Bei der Herleitung einer Sterblichkeitstafel für Invaliden zeigte sich das bemerkenswerte, aber keineswegs unvermutete, Resultat, dass die Sterbenswahrscheinlichkeit in den höheren Altern sich derjenigen bei der Sterblichkeitstafel für Sachsen wieder näherte, während sie vorher bedeutend davon abwich. Durch diese Tatsache durfte ich mich für ermächtigt halten, von da ab wieder die Sterbenswahrscheinlichkeiten der sächsischen Tafel einzuführen und nach diesen die Sterblichkeitstafel nach oben hin zu vervollständigen. In den jüngeren Altern durfte ich die sächsische Tafel mit um so grösserem Rechte bestehen lassen, als ja die Invaliditätshypothese für diese Alter nur eine verschwindend kleine Zahl von Invaliden liefert.

— Es war mir nicht möglich, der Versuchung zu widerstehen, nach dieser Tabelle die Leibrenten-Werte für Invaliden zu berechnen. Ist auch diesen Leibrenten nur ein relativer Wert beizulegen, so glaube ich doch, dass sie einstweilen bei den Tarif- und Reserveberechnungen für Invalidenkassen benutzt werden können. Sie stehen wenigstens den wahren Werten näher, als die nach anderen Sterblichkeitstafeln berechneten, denn die letzteren sind entschieden falsch und deshalb geeignet, entweder lebensfähige Pensions-Kassen in den Ruf der Insolvenz zu bringen, oder die Mitglieder mit unverhältnismässig hohen und meist unerschwinglichen Beiträgen zu belasten."

Schon Dr. Wiegand stellt somit die Tatsache — die später verschiedene Erklärung gefunden hat — fest, dass die *Invaliden-Sterblichkeit mit zunehmendem Alter relativ abnimmt und allmählich in die allgemeine Sterblichkeit übergeht.* Auch für die jüngeren Lebensalter glaubt er die allgemeine Sterblichkeit einführen zu können, was freilich eine irrtümliche Ansicht war. Die Zweifel Wiegands an der vollständigen Richtigkeit und der vorbehaltlosen Anwendbarkeit der aus der Tafel berechneten Invaliden-Rentenwerte sind wohl weniger auf andere Gründe zurückzuführen als auf die Einsicht, das zu Grunde liegende Beobachtungsmaterial sei noch zu wenig umfangreich. Die Zahl der unter einjähriger Beobachtung gestandenen Invaliden betrug nämlich nur 3497.5 mit 214 im Laufe des Jahres Gestorbenen. Die Ausgleichung der Tafel erfolgte nach dem Wittstein'schen Verfahren. Diese *erste* Invaliden-Sterblichkeits-Tabelle ist in der beigefügten Übersicht unter I gegeben.

Dr. August Wiegand hat sich durch seine rastlosen und mit Erfolg gekrönten Bemühungen um die Gewinnung von statistischen Grundlagen für die Invaliden-Versicherung sowie den theoretischen Ausbau ihrer Rechnungsmethoden unbestritten ein grosses Verdienst erworben. Es war daher gerechtfertigt, bei ihm etwas länger zu verweilen.

Die von Dr. Wiegand begonnenen Arbeiten wurden sodann im Auftrag des Vereins deutscher Eisenbahn-Verwaltungen von dem Geheimen Ministerialsekretär *G. Behm,* Dresden, fortgeführt, wobei das Beobachtungsmaterial aus den Jahren 1868-73 zur Bearbeitung kam. Die bezüglichen Resultate sind in dem bemerkenswerten Buch „Statistik der Mortalitäts-, Invaliditäts- und Morbilitätsverhältnisse bei dem Beamtenpersonal der deutschen Eisenbahn-Verwaltungen" (Berlin 1876) veröffentlicht worden. Die nach Wittsteins Methode ausgeglichene Invaliden-Sterblichkeits-Tafel (siehe beigefügte Übersicht unter II) ist aus 14,247 unter einjähriger Beobachtung gestandenen Personen mit 865 Gestorbenen abstrahiert worden. Als Charakteristikum hebt auch Behm hervor, „dass die in den jüngeren Lebensjahren in den Zustand der Invalidität tretenden Beamten einer Sterblichkeit unterworfen sind, welche die allgemeine Sterblichkeit in einem ganz immensen Grade übersteigt. Mit dem zunehmenden Lebensalter nähert sich die Invalidensterblichkeit der allgemeinen Sterblichkeit immer mehr und mehr, bis sie schliesslich in letztere vollständig übergeht."

Weitere Invaliden-Sterblichkeitstafeln wurden hergestellt:

1881 von *F. Gerkrath,* aus den Erfahrungen des *deutschen Eisenbahn-Personals* für das Jahr 1878 (siehe „Über die Höhe der Beiträge für die Arbeiter-Versicherung," Berlin 1881). Dieselbe ist aus 7718 unter Beobachtung stehenden Personen mit 518 Gestorbenen und durch Ausgleichung nach Wittsteins Methode konstruiert worden;

1882 von *Küttner,* für die *Steinkohlen-Bergleute* nach den Ergebnissen der preussischen Knappschafts-Statistik 1874-78 bearbeitet (siehe

„Zeitschrift für Berg-, Hütten- und Salinen-Wesen," 1881). Derselben lagen 84,219 unter einjähriger Beobachtung gestandenen Personen mit 6797 Gestorbenen zu Grunde und fand die Ausgleichung auf graphischem Wege statt;

1882 von *Caron,* für die *preussischen Knappschaftsvereine* nach der preussischen Knappschafts-Statistik 1870-79 bearbeitet (siehe „Die Reform des Knappschaftswesens und die allgemeine Arbeiterversicherung," Berlin 1882).

Die 3 Tafeln finden sich sub III-V im Anhang aufgeführt.

Eine *neue Hypothese* über die Invaliden-Sterblichkeit stellte in der Folge Dr. *Hermann Zimmermann* auf, dem das weitergeführte Beobachtungsmaterial des Vereins deutscher Eisenbahn-Verwaltungen für die Jahre 1868-1884 zur Bearbeitung übertragen war. Die Ergebnisse derselben sind in 3 aufeinander folgenden verdienstvollen Publikationen (Über Dienstunfähigkeits- und Sterbensverhältnisse, Berlin 1886; Beiträge zur Theorie der Dienstunfähigkeits- und Sterbens-Statistik, Berlin 1887 und 1888) enthalten.

Aus einer vergleichenden Übersicht über die bis zu jener Zeit konstruierten Invaliden-Sterbenswahrscheinlichkeiten (I, p. 49 u. ff.) konstatiert Zimmermann die übereinstimmende Eigenschaft der Tafeln, *bis zum 50./55. Lebensjahr abnehmende Werte aufzuweisen,* und zieht daraus folgende Schlüsse: „Ob nun diese Eigentümlichkeit für die Güte oder für den geringen Wert der Tafeln für Dienstunfähige spricht, will ich nicht entscheiden, da mir die Erhebung des statistischen Materials in diesem Falle an einer grossen Unvollkommenheit zu leiden scheint.

Denn es ist einleuchtend, dass diejenigen Personen, welche vor kurzem arbeitsunfähig geworden sind, eine schwächere Gesundheit haben und allen schädlichen Einflüssen einen geringeren Widerstand entgegensetzen können, als andere Personen derselben Altersklasse, welche schon vor 5 oder 10 Jahren arbeitsunfähig geworden sind und sich in guter Pflege erholt haben. Nun findet man solche Verschiedenheiten zwar auch bei anderen Gruppen von Personen, für welche man einheitliche Sterbenstafeln aufstellt. Aber da hier der Gesundheitszustand so nahe mit dem Prinzip zusammenhängt, nach welchem die ganze Beobachtungsgruppe ausgewählt ist, so scheint mir der Punkt sehr wesentlich zu sein. Diese Ansicht fand ich auch ausgesprochen in einem Berichte über die „Untersuchung der Leistungsfähigkeit des Pensionsfonds für technische Lehrer in Oberbayern" von *Selling,* der diesen Übelstand schon 1879 hervorgehoben hat, ohne dass ich denselben in irgend einer der verbreiteten Schriften und Lehrbücher über diesen Gegenstand erwähnt gefunden hätte.

Um dem Mangel abzuhelfen, müssten zunächst die wegen *Dienstunfähigkeit Pensionierten von den übrigen Pensionierten getrennt werden.* Sodann müssten die am Anfange des Jahres vorhandenen, sowie die durch Tod oder aus anderen Ursachen ausscheidenden Dienstunfähigen in *zwei Klassen* getrennt werden, nämlich in a) *solche, die erst in der letzten Zeit, etwa in den letzten zwei Jahren, dienstunfähig geworden sind,* und b) *solche, die schon länger dienstunfähig waren"*

Im zweiten Teil seiner Beiträge (1887) gibt Zimmermann ein Verfahren an, wie man auf hypothetischem Wege aus der vorliegenden Gesamtheit der Invaliden zwei Kategorien, nämlich solche, die in den letzten zwei Jahren invalid geworden („noch nicht gekräftigte" Invalide) und solche, die früher invalid geworden und noch am Leben sind („gekräftigte" Invalide) auszuscheiden vermöge und berechnet im dritten Teil (1888) entsprechende Tafeln. Diese, wie auch die Grundtabelle, die sich

auf 109,778 einjährige Beobachtungen mit 6594 Todesfällen stützt, sind in den Col. VI und VII unserer Übersicht wiedergegeben. Die Ausgleichung der Tabelle erfolgte nach dem Woolhouse'schen Verfahren.

Die letzte Bearbeitung der Statistik des Vereins deutscher Eisenbahn-Verwaltungen erfolgte durch Dr. *Bentzien*, und sind deren Resultate im „Vereinsblatt für das deutsche Versicherungswesen" (1892, p. 119 u. ff.) veröffentlicht worden. Dieser Tafel (siehe sub VIII im Anhang) liegen die Beobachtungen aus dem Zeitraum 1868-1889 mit 209,548 unter einjähriger Beobachtung gestandenen Invaliden und 12,375 Todesfällen zu Grunde.

Mit Ausnahme der beiden hypothetischen Tafeln Dr. Zimmermanns für „nicht gekräftigte" und „gekräftigte" Invalide sind die bisher besprochenen Sterblichkeitstabellen *Durchschnittstafeln*, bei denen auf die von Zimmermann u. A. konstatierte Tatsache, dass die Lebenserwartung der Invaliden mit dem Invaliditäts-Alter (Dauer der Invalidität) sich successive günstiger gestaltet, keine Rücksicht genommen wird, und bei denen vielmehr die gleichalterigen Personen, gleichgiltig von welchem Invaliditätsalter, zusammengenommen werden, so dass eine durchschnittliche Sterbenswahrscheinlichkeit entsteht, die für Personen mit kurzer Invaliditätsdauer zu niedrig, für Personen mit längerer Invaliditätsdauer zu hoch bemessen ist. Von analoger Beschaffenheit sind die aus jenen durchschnittlichen Wahrscheinlichkeiten berechneten Rentenwerte, die deshalb bei ihrer Anwendung auf Bilanzrechnungen in der Höhe völlig zutreffende Reserven nicht zu geben vermögen.

Zur Erklärung der Abnahme der Sterblichkeit mit der Zunahme des Invaliditätsalters hat Dr. Zimmermann — wie wir oben gesehen — die Hypothese von der allmählichen „Kräftigung" der Invaliden aufgestellt. Zweifellos kann und wird eine solche „Kräftigung" bei manchen Invaliden eintreten. Wie aber neuere Erfahrungen beweisen, reicht jene Annahme zur Erklärung der Sterblichkeitsabnahme nicht aus. Diese Erfahrungen, die ein dankenswertes Licht über die in Rede stehenden und andere Verhältnisse verbreitet haben, sind bei der in Deutschland seit 1889 bestehenden *reichsgesetzlichen Arbeiter-Invalidenversicherung* gemacht worden. Da der Verlauf der Invalidensterblichkeit und die Beschaffenheit der Rentenwerte für die Belastung der reichsgesetzlichen Invalidenversicherung und die Normierung der Beiträge von grosser Wichtigkeit sind, hat die mathematische Abteilung des *Reichs-Versicherungsamtes* schon 1894-95 eine bezügliche Untersuchung durchgeführt. Die Resultate derselben, die in der „Denkschrift betreffend die Höhe und Verteilung der finanziellen Belastung aus der Invalidenversicherung" (Drucksachen des Reichstages, No. 93, 1898) mitgeteilt sind und bei den Berechnungen Verwendung gefunden haben, waren so beschaffen, dass sie zu einer Weiterführung der Untersuchung geradezu herausforderten.

Im Jahre 1901 hat sodann das Reichs-Versicherungsamt eine neue Publikation „Das Ausscheiden der Invalidenrenten-Empfänger aus dem Rentengenuss" (Amtl. Nachrichten des Reichs-Versicherungsamts, 1902, 2. Beiheft) erscheinen lassen, die die Erfahrungen der Jahre 1891-97 mit 274,814 Rentenempfängern und 78,121 aus dem Rentengenuss ausgeschiedenen Personen (wovon durch Tod 74,735, durch Reaktivierung 2885, durch andere Ursachen 501) zu Grunde liegen. Aus den Beobachtungen gingen für jedes Lebensjahr vom 20. aufwärts die Wahrscheinlichkeiten hervor, im 1., 2., 3., ... und 7. Rentenbezugsjahr auszuscheiden; für das 8., 9. und 10. Rentenbezugsjahr sind die Wahrscheinlichkeiten auf hypothetischem Wege bestimmt worden, und so lässt sich der Schluss ziehen, dass nach dem 10. Rentenbezugsjahr die Sterblichkeit

der Invaliden in die Sterblichkeit der deutschen Reichs-Sterbetafel übergeht. In unserer Übersicht (sub X) sind beispielsweise die Ausscheide-Wahrscheinlichkeiten für das 1., 2., 3., 6. und 10. Rentenbezugsjahr wiedergegeben. Die Betrachtung zeigt in eklatanter Weise *die ausserordentlich starke Abnahme der Sterblichkeit in den ersten 6 Jahren des Rentenbezuges* bei den *jüngeren* Rentenempfängern; bei weitem *geringer* ist diese *Abnahme* in den *mittleren* und *höheren,* und *verschwindet gänzlich* in den *höchsten Lebensaltern.* Charakteristisch ist ferner, dass die *Sterblichkeit innerhalb des nämlichen Rentengenussjahres,* also unabhängig vom Invaliditätsalter, *mit jedem höheren Lebensjahr, bis etwa zum Alter 55/60, abnimmt,* was, wie wir gesehen, Dr. Zimmermann für ausgeschlossen hielt und die ihm ungereimte Erscheinung lediglich als durch den Durchschnitt der Wahrscheinlichkeiten verursacht erklärte.

Wie begründen sich nun aber diese Erscheinungen? Im wesentlichen offenbar durch die *Verschiedenheit der Ursachen der Invalidität* in den *jüngeren* und in den *höheren Lebensaltern.* Die in jüngeren Jahren zur Dienstunfähigkeit führenden Krankheiten sind nämlich meist solche, die relativ rasch den Tod herbeiführen, während die die Invalidität im höheren Alter verursachenden Krankheiten weniger akut sind, oft nur in einer allmählichen Kräfteabnahme bestehen, die wohl die Erwerbsfähigkeit beschränken, ohne aber die Sterblichkeit gegenüber dem Durchschnitt wesentlich zu erhöhen.

Zu den in jüngeren Jahren am häufigsten auftretenden und die Sterblichkeit unter den Invaliden erhöhenden Krankheiten gehört vor allem die *Lungentuberkulose.* In dieser Beziehung hat Dr. Pietsch, kaiserl. Regierungsrat im Reichs-Versicherungsamt, in seinem gehaltvollen Vortrage über das „Ausscheiden der reichsgesetzlichen Invalidenrentenempfänger aus dem Rentengenuss" (siehe Veröffentlichungen des Vereins für Versicherungswissenschaft, Heft I, Berlin 1903) äusserst lehrreiche Mitteilungen gemacht. Danach sind bei den Männern insgesamt 12%, bei den Weibern 7.6% der Invaliditätsfälle durch Tuberkulose verursacht; in den jüngeren Jahren dagegen steigt dieses Verhältnis auf 48, bezw. 37%. Wie ausserordentlich hoch die Sterblichkeit unter den jüngeren Tuberkulose-Invaliden ist und welch ungünstigen Einfluss sie auf die allgemeine Sterblichkeit unter den Invaliden der jüngeren Alter ausübt, zeigt folgende Zusammenstellung:

von 100 Tuberkulose-Invaliden (Männer)	sterben im 1. Jahr der Invalidität	überleben das 4. Jahr der Invalidität
Altersgruppe 25-29 Jahre	82%	4%
Altersgruppe 45-49 Jahre	60%	15%,

während von 100 Invaliden (Männer), die durch andere Ursachen als Tuberkulose invalid geworden sind,

	sterben im 1. Jahr der Invalidität	überleben das 4. Jahr der Invalidität
Altersgruppe 25-29 Jahre	nur 31%	46%
Altersgruppe 45-49 Jahre	nur 25%	53%.

Diese Erfahrungen zeigen mit aller Deutlichkeit, dass die *rasche Abnahme der Invaliden-Sterblichkeit in den jüngeren Jahren nicht in der Kräftigung der einzelnen Invaliden,* wie Dr. Zimmermann annahm — die freilich in einzelnen Fällen auch wirken mag — *begründet ist,* sondern *vor allem in dem raschen Aussterben der schwächsten und schwächeren Elemente.* Diesbezüglich sagt Professor Dr. L. Bortkiewicz in seiner Abhandlung über „Die Sterblichkeit der Empfänger von Invaliden-

renten" (Zeitschrift für Versicherungsrecht und Versicherungswissenschaft, Strassburg 1899) in treffender Weise (S. 575): „Nicht darum handelt es sich, dass die Invaliden einzeln genommen kräftiger werden, sondern vielmehr darum, dass die Gruppe als solche kräftiger wird, und zwar in der Folge davon, dass die kurzlebigen Elemente, wie z. B. die von Lungentuberkulose Betroffenen, aus der Gruppe durch Tod rasch ausscheiden."

Aus der Statistik der reichsgesetzlichen Invalidenversicherung ergibt sich ferner eine grosse Verschiedenheit der Invaliden-Sterblichkeit bei den *beiden Geschlechtern* (Dr. Pietsch, loc. cit., pag. 42 ff.):

Von 100 Invaliden		scheiden aus im 1. Jahr	überleben das 4. Jahr
Altersgruppe 25-29 Jahre	männl.	53	25
	weibl.	31	48
Altersgruppe 45-49 Jahre	männl.	30	47
	weibl.	15	69
Altersgruppe 65-69 Jahre	männl.	16	60
	weibl.	9	71

Die Erfahrungen der reichsgesetzlichen Invalidenversicherung lassen zur Evidenz erkennen, dass die Sterblichkeit der Invaliden von einer Reihe von Faktoren abhängig ist, die bei der normalen Sterblichkeit nicht in Betracht fallen, insbesondere vom *Alter beim Eintritt der Invalidität,* vom *Invaliditäts-Alter* (Dauer der Invalidität), von den *Ursachen der Invalidität* und vom *Geschlecht.* Die Versicherungstechnik wird daraus bei der Konstruktion von Sterbetafeln und beim theoretischen Ausbau der Invalidenversicherung die nötigen Konsequenzen zu ziehen haben. Prof. Dr. Bortkiewicz sagt hiezu in seiner schon zitierten Abhandlung (S. 595): „Man wird künftighin jeglichen Vorausberechnungen, Entwürfen, Bilanzen auf dem Gebiet der Invalidenversicherung, denen keine Unterscheidung der Rentenkapitalswerte nach dem Merkmale des Invaliditätsalters zu Grunde liegt, ein wohlbegründetes Misstrauen entgegenbringen können"; und weiter (S. 598): „So erweist sich die alte Methode zur Berechnung der Kapitalswerte der Invalidenrenten als unhaltbar in jeder Beziehung, und es steht zu erwarten, dass sie aus der Praxis in nicht allzu ferner Zeit verschwunden sein wird."

Einige Zeit dürfte freilich die Abschaffung der alten Methode noch auf sich warten lassen, zumal zuerst ein neues rationell bearbeitetes Material hergestellt werden muss. Denn die vom Reichs-Versicherungsamt konstruierten Tafeln für die reichsgesetzlichen Invaliden eignen sich nur in seltenen Fällen für andere Pensionsversicherungen, und mahnt Regierungsrat Dr. Pietsch diesbezüglich mit Recht zu grösster Vorsicht (loc. cit., p. 47). Nun ist ja auch die mathematische Fachabteilung des Deutschen Vereins für Versicherungswissenschaft im Begriffe, rationelle Tafeln zu schaffen, und dürfen wir hoffen, dass dieselben nach Fertigstellung nicht nur für die privaten Versicherungsgesellschaften, sondern zu allgemeinerer Verwendung geeignet sein werden. Zweifellos wird es indessen auch später immer noch besondere Verhältnisse geben, die die Aufstellung von eigenen Invaliden-Sterbetafeln als wünschenswert erscheinen lassen. Nicht immer aber wird ein Beobachtungsmaterial vorhanden sein, dessen Umfang es gestattet, differenzierte Wahrscheinlichkeiten zu berechnen und wird man sich in solchen Fällen mit Durchschnittswerten begnügen müssen, die bei der Berechnung von Reserven eine geringere Abweichung von der normalen Richtigkeit ergeben dürften, als wenn die Rechnung auf unzutreffenden fremden Beobachtungswerten

UEBERSICHT DER IN DEUTSCHLAND IM ZEITRAUM VON 1871–1902 KONSTRUIERTEN INVALIDEN-STERBETAFELN

q^i_x = Sterbenswahrscheinlichkeit der Invaliden;

l^i_x = Anzahl der Invaliden vom Alter x;

s^i_x = Ausscheidewahrscheinlichkeit (für Tod u. sonstiges Ausscheiden) bei der deutschen Arbeiter-Invalidenversicherung;

q_x = Sterbenswahrscheinlichkeit in der deutschen Reichssterbetafel.

Alter	I. Deutsche Eisenbahnbeamte, 1868-69. (Dr. Wiegand, 1871)		II. Deutsche Eisenbahnbeamte, 1868-73. (Behm, 1876)		III. Deutsche Eisenbahnbeamte, 1878. (Gerkrath, 1881)		IV. Steinkohlenbergleute in Preussen, 1874-78. (Küttner, 1882)		V. Preussische Bergarbeiter, 1870-79. (Caron, 1882)		VI. Deutsche Eisenbahnbeamte, 1868-84. (Dr. Zimmermann, 1884)		VII. Deutsche Eisenbahnbeamte, 1868-84. (Dr. Zimmermann, 1888)		VIII. Deutsche Eisenbahnbeamte, 1868-89. (Dr. Bentzien, 1892)	IX. Bayerische Berg-, Hütten- u. Salinenarbeiter, 1870-1900. (Dr. J. Eggenberger, 1902)	X. Ausscheidetafel für reichsgesetzliche Invaliden-rentenempfänger, 1879-97. Deutscher Versicherungsamt 1901. Wahrscheinlichkeit auszuscheiden im: 2. 3. 6. 10. Versicherungsjahr				Deutsche Reichssterbetafel 1901/02 Männer	Alter
	q^i_x	l^i_x	q^i_x	l^i_x	q^i_x	l^i_x	q^i_x	l^i_x	q^i_x	l^i_x	q^i_x	l^i_x	q^i_x	l^i_x	q_x	q^i_x					q_x	
16	....	....	....	....	....	....	0.0736	10000	....	....	....	....	....	....									16
17	....	....	....	....	....	....	718	9264	....	....	....	....	....	....									17
18	....	....	....	....	....	....	698	8599	....	....	....	....	....	....									18
19	....	....	....	....	....	....	676	7999	....	....	....	....	....	....							....	....	19
20	....	....	....	....	0.18350	10000	652	7458	0.07092	10000	....	....	....	....							0.0693		20
21	....	....	....	....	15285	8165	623	6972	6866	9291	....	....	....	....					0.5260	0.2910	0.1570	0.0460	0.0110	95	21
22	....	....	....	....	12737	6917	588	6537	6647	8653	....	....	....	....					5450	2855	1550	463	112	98	22
23	....	....	....	....	10620	6036	547	6153	6435	8078	....	....	....	....					5040	2800	1530	466	116	102	23
24	....	....	0.17212	10000	8842	5395	507	5816	6230	7558	....	....	....	....					4630	2750	1510	469	118	106	24
25	....	....	15479	8279	7381	4918	471	5521	6032	7087	....	....	....	....					4820	2700	1490	472	122	110	25
26	....	....	13844	6997	5993	4555	446	5261	5840	6660	0.0831	66830	0.1062	0.01[illegible]	0.0849	61720			4710	2650	1470	475	126	115	26
27	....	....	12844	6028	5114	4282	428	5027	5654	6271	795	61275	1042	1[illegible]	810	56482	0.19371	19000	4600	2600	1450	479	130	125	27
28	....	....	11345	5254	4455	4063	414	4812	5473	5916	757	56103	1026	1[illegible]	769	51907	18668	8063	4500	2550	1430	483	136	136	28
29	....	....	8888	4658	4920	3882	404	4612	5299	5592	720	52132	1017	1[illegible]	729	47915	17992	6558	4400	2500	1410	487	140	145	29
30	....	....	8509	4244	5906	3691	399	4426	5130	5296	685	48380	1013	1[illegible]	691	44424	17344	5878	4300	2450	1390	491	145	154	30
31	....	....	8167	3883	7314	3473	398	4249	4967	5024	656	45066	1016	1[illegible]	667	41354	16725	4445	4200	2400	1370	495	150	166	31
32	0.0720	38240	6876	3566	8015	3219	402	4080	5041	4774	610	42109	1025	1[illegible]	652	38596	16133	3702	4100	2350	1350	499	156	142	32
33	710	35487	5729	3321	8308	2961	414	3916	5117	4533	610	39414	1042	1[illegible]	642	36084	14811	3105	4000	2300	1330	503	162	148	33
34	769	32968	5245	3131	8766	2715	448	3754	5194	4301	639	36892	1066	1[illegible]	[illegible]	33763	12947	2645	3900	2250	1310	507	168	154	34
35	812	30433	5398	2967	8236	2477	495	3586	5272	4078	639	34531	1081	1[illegible]	[illegible]	31625	10823	2303	3800	2200	1290	511	174	161	35
36	792	27991	5571	2807	7479	2273	508	3408	5351	3863	639	32324	1092	21[illegible]	[illegible]	29652	8555	2054	3700	2150	1270	515	181	168	36
37	755	25775	6113	2651	6895	2103	513	3235	5431	3656	639	30258	1103	223	[illegible]	27824	7402	1878	3600	2100	1250	519	188	176	37
38	764	23829	6714	2489	6848	1958	514	3069	5513	3457	639	28325	1103	223	[illegible]	26140	8222	1739	3500	2050	1230	523	196	185	38
39	738	22008	6945	2322	6250	1824	515	2912	5595	3266	639	26515	1103	223	[illegible]	24589	9995	1596	3400	2000	1240	527	205	194	39
40	735	20384	7130	2161	6433	1710	515	2762	5757	3083	633	24821	1103	223	[illegible]	23167	10681	1436	3310	1950	1190	531	214	204	40
41	729	18886	6966	2007	6625	1600	515	2619	5924	2906	622	23251	1103	223	[illegible]	21843	9769	1283	3220	1900	1165	535	224	215	41
42	682	17509	6600	1867	6760	1494	517	2485	6095	2734	599	21804	1103	223	[illegible]	20624	8218	1158	3130	1850	1140	540	235	226	42
43	626	16315	6184	1744	6748	1393	520	2356	6271	2567	583	20497	1103	223	[illegible]	19488	7921	1063	3040	1800	1115	545	240	237	43
44	563	15294	5851	1636	7082	1299	537	2234	6452	2406	558	19302	1103	223	[illegible]	18428	8978	979	2950	1750	1090	550	257	250	44
45	475	14432	5452	1540	6794	1207	573	2114	6506	2251	546	18225	1103	223	[illegible]	17440	10415	891	2860	1700	1065	555	270	264	45
46	424	13474	5293	1456	6667	1125	598	1993	6559	2105	530	17230	1103	223	[illegible]	16527	10874	798	2770	1650	1040	560	284	279	46
47	413	13164	5189	1379	6381	1050	608	1873	6614	1967	525	16317	1103	223	[illegible]	15675	10006	711	2680	1595	1020	566	299	296	47
48	418	12620	5149	1307	6002	983	610	1759	6669	1837	520	15460	1103	223	[illegible]	14880	8534	649	2580	1540	1000	573	316	314	48
49	451	12093	5088	1240	5411	924	607	1652	6724	1714	516	14656	1103	223	[illegible]	14143	7157	585	2500	1485	980	582	334	334	49
50	499	11547	5033	1177	5149	874	597	1552	6733	1599	512	13899	1103	223	[illegible]	13446	6335	543	2410	1430	960	591	354	357	50
51	540	10971	4837	1118	4946	829	592	1459	6742	1491	503	12515	1103	223	[illegible]	12784	5943	509	2320	1375	940	601	377	384	51
52	587	10379	4806	1064	4949	788	592	1373	6751	1390	496	11886	1103	223	[illegible]	12158	6092	479	2230	1320	925	611	402	410	52
53	616	9770	4704	1013	4940	749	595	1292	6760	1296	486	11297	1103	223	[illegible]	11570	6795	450	2140	1270	910	622	430	441	53
54	608	9168	4691	965	5478	712	601	1215	6769	1208	485	10748	1103	223	[illegible]	11011	7791	419	2050	1225	895	633	461	[illegible]	54
55	628	8610	4686	920	5498	673	610	1142	6869	1126	485	10227	1103	223	[illegible]	10489	8515	386	1960	1180	880	644	495	[illegible]	55
56	616	8070	4875	877	5660	636	621	1072	6970	1049	487	9731	1103	223	[illegible]	9995	8577	353	1875	1140	870	655	532	[illegible]	56
57	610	7572	5026	834	6000	600	632	1006	7073	976	489	9257	1103	223	[illegible]	9525	8280	323	1790	1100	860	667	572	[illegible]	57
58	613	7110	5238	792	6206	564	645	942	7177	907	495	8804	1111	232	[illegible]	9077	8167	296	1710	1060	850	680	616	643	58
59	634	6675	5485	751	6238	529	660	881	7283	842	501	8368	1120	242	[illegible]	8649	8640	272	1640	1020	845	695	663	[illegible]	59
60	688	6251	5804	710	6250	496	677	823	7598	781	512	7949	1131	253	[illegible]	8235	9271	248	[illegible]	985	845	715	714	[illegible]	60
61	715	5821	6017	669	6452	465	707	767	7926	722	529	7542	1150	274	[illegible]	7835	9516	225	1545	970	850	740	770	[illegible]	61
62	731	5405	6224	629	6437	435	799	713	8269	665	550	7143	1174	301	[illegible]	7445	9460	204	1469	960	855	770	831	[illegible]	62
63	784	5010	6439	590	6634	407	888	656	8626	610	573	6750	1201	331	[illegible]	7066	9466	185	1410	960	860	810	897	[illegible]	63
64	836	4617	6699	552	6579	380	941	598	8999	557	602	6363	1235	369	[illegible]	6691	9697	167	1365	965	880	870	969	[illegible]	64
65	842	4231	6864	515	6761	355	979	542	9385	507	629	5980	1272	408	[illegible]	6323	9552	151	1307	970	885	900	1027	[illegible]	65
66	862	3875	7117	480	6949	331	1010	489	9786	459	653	5604	1305	445	[illegible]	5960	9052	137	[illegible]	980	935	950	1128	[illegible]	66
67	872	3541	7419	446	7143	308	1035	439	10205	414	685	5238	1343	487	[illegible]	5606	8544	125	1275	995	970	1000	1215	[illegible]	67
68	843	3232	7660	413	6993	286	1060	394	10642	372	715	4879	1379	526	[illegible]	5259	8623	114	1205	1020	1000	1055	1305	[illegible]	68
69	801	2960	7887	381	7143	266	1085	352	11098	332	744	4530	1417	568	[illegible]	4922	9169	104	1200	1050	1040	1110	1399	[illegible]	69
70	800	2721	8044	351	7287	247	1111	314	11573	295	780	4193	1457	612	[illegible]	4591	9856	94	1255	1085	1080	1170	1508	[illegible]	70
71	807	2486	8319	323	7424	229	1136	279	12069	261	820	3866	1501	661	[illegible]	4264	10223	85	1255	1170	1150	1250	1623	[illegible]	71
72	....	2256	8707	296	8019	212	1161	247	12585	229	865	3549	1556	721	[illegible]	3942	10125	76	1235	1170	1180	1380	1745	[illegible]	72
73	....	2030	9477	270	8205	195	1186	219	13124	200	922	3242	1620	791	[illegible]	3624	9827	68	1265	1220	1240	1420	1873	[illegible]	73
74	....	....	10238	244	8939	179	1211	193	13686	174	992	2943	1693	872	[illegible]	3311	9695	61	1285	1270	1300	1520	2007	[illegible]	74
75	....	....	11652	219	9202	163	1235	169	15117	150	1068	2651	1774	960	[illegible]	2695	11363	49	1365	1395	1450	1745	2290	[illegible]	75
76	....	....	13091	193	10135	148	1260	148	16698	127	1161	2368	1874	1070	[illegible]	2399	[illegible]	43	1450	1470	1540	1873	2436	[illegible]	76
77	....	....	13790	168	14286	133	1290	130	18443	106	1261	2093	1970	1176	[illegible]	2113	[illegible]	[illegible]	1505	1560	1640	2007	2585	[illegible]	77
78	....	....	14266	145	18421	114	1308	113	20372	86	1383	1829	2093	1311	[illegible]	1840	[illegible]	[illegible]	1495	1660	1760	2147	2734	[illegible]	78
79	....	....	14508	124	22581	93	1351	98	22502	68	1491	1576	2196	1424	[illegible]	1584	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	79
80	....	....	14078	106	27778	72	1496	85	24854	53	1626	1341	2332	1574	[illegible]	1346	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	80
81	....	....	....	91	34615	52	1567	72	27453	40	1736	1123	2425	1676	1741	1126	....	....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	81
82	....	....	....	....	41176	34	1756	61	30323	29	1864	928	2548	1811	1892	930	....	....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	82
83	....	....	....	....	45000	20	2007	50	33493	20	2003	755	2675	1951	2035	754	....	....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	83
84	....	....	....	....	54545	11	2291	40	36995	13	2171	604	2827	2117	2163	601	....	....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	84
85	....	....	....	....	60000	5	2543	31	40863	8	2360	473	2997	2305	2314	471	....	....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	85
86	....	....	....	....	50000	2	2835	23	45135	5	2575	361	3191	2518	2459	362	....	....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	86
87	....	....	....	....	....	1	3209	17	49854	3	2820	268	3414	2762	2601	273	....	....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	87
88	....	....	....	....	....	....	3701	11	55066	2	3104	193	3671	3045	2772	202	....	....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	88
89	....	....	....	....	....	....	4250	7	60824	1	3436	133	3973	3377	2995	146	....	....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	89
90	....	....	....	....	....	....	4783	4	67183	....	3832	87	4332	3772	3258	102	....	....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	90
91	....	....	....	....	....	....	5417	2	74207	....	4313	54	4771	4254	3585	69	....	....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	91
92	....	....	....	....	....	....	6363	1	81965	....	4918	31	5324	4861	4008	44	....	....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	92
93	....	....	....	....	....	....	7500	0	90535	....	5720	16	6058	5668	4596	26	....	....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	93
94	....	....	....	....	....	....	1.0000	....	1.00000	....	6900	7	7140	6858	5548	14	....	....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	94
95	....	....	....	....	....	....	....	....	....	....	1.0000	2	....	1.0000	1.0000	6	....	....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	95
96	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	96
97	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	97
98	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	98
99	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	99
100	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	100

Die Sterbenswahrscheinlichkeiten der Invalidentafel für Männer entsprechen nicht dem nebenstehenden Alter, sondern dem um 10 Jahre höheren Alter, da die Ausscheidewahrscheinlichkeiten der Invaliden nach 10 Jahren in die Wahrscheinlichkeiten der Reichstafel übergehen.

aufgebaut wäre. So war es beispielsweise bei der in der Anlage sub IX gegebenen Tabelle, welche vom Referenten aus der Erfahrung der k. bayerischen Knappschaftskassen konstruiert worden ist (Siehe Dr. J. Eggenberger, „Über die Mortalitäts- und Invaliditätsverhältnisse der Arbeiter in den k. bayerischen Berg-, Hütten- und Salinenbetrieben," Zeitschrift f. d. gesamte Versich.-Wissenschaft, Heft II, 1903), ganz unmöglich, eine Tafel nach der neuen Methode herzustellen. Die Beobachtung erstreckte sich nämlich auf eine Periode von 30 Jahren mit zusammen nur 11,686 unter einjähriger Beobachtung gestandenen Invaliden und 1196 Gestorbenen.

Vom Standpunkt der neuen Methode aus kann man ja den im Anhang aufgeführten Durchschnittstafeln für eine nicht allzuferne Zukunft jede praktische Bedeutung absprechen. Dieselben waren aber nicht nur in der Vergangenheit, sondern sind auch heute noch von grossem praktischen Nutzen und besitzen für die Zukunft ein grosses theoretisches und historisches Interesse, ebenso werden sie für praktische Vergleiche auch in Zukunft noch von Wert sein. Zu einer Zeit, wo bezüglich dieser Fragen gewissermassen eine neue Epoche beginnt, erschien mir daher diese Zusammenstellung, die ein Bild der bisherigen Entwicklung und Leistungen involviert, geboten zu sein.

Diese tabellarische Übersicht ist gleichzeitig ein sprechendes Zeugnis dafür, dass in *Deutschland* die Frage der Invaliden-Sterblichkeit, wie der Invaliden-Versicherung überhaupt, schon seit längerer Zeit einem eifrigen Studium unterworfen worden ist, sei es aus versicherungstechnischen, sei es aus sozialpolitischen Motiven. Und, nachdem sich nun in jüngster Zeit der Deutsche Verein für Versicherungswissenschaft in intensiver Weise mit der vorliegenden Frage zu beschäftigen begonnen hat, eröffnet sich in dieser Richtung für die deutschen Versicherungs-Mathematiker eine ganz besonders erfreuliche Perspektive!

ABSTRACT.

FORMULATION OF INVALID MORTALITY TABLES.

By Dr. J. Eggenberger.

The Invalidity insurance existed in Germany, even if in a primitive form, for a long time, and was carried on by miners' associations and aid societies of railroad employees. The merit of originating the first statistical and theoretical form of insurance belongs without doubt to the prominent insurance mathematicians, Dr. Carl Heym and Dr. August Wiegand. While the former advanced an hypothesis regarding the probability of invalidity, the latter successfully formulated, from experience, tables of invalidity and mortality among the German railroad employees. The first table of such a kind was published by Dr. Wiegand in 1871, and in connection therewith he stated the fact that the mortality of invalids decreases with advanced age, and little by little passes over to general mortality.

Additional mortality tables of invalids arrived at from experience among German railroad employees were made up later by Behm (1876), Gerkrath (1881), and Dr. H. Zimmermann (1884). The last-mentioned author explains the fact of the decrease of the mortality of invalids with advancing age by the hypothesis that the health of invalids becomes improved with the duration of invalidity, and he derives in a hypothetical way two tables of mortality of invalids, one for "not recuperated" invalids (who became unfit for service only in the last two years) and another for "recuperated" invalids (who became unfit for service before two years). This latter table shows figures of much lower mortality than the former. In the same way tables of mortality of invalids have been made up by Küttner for the miners (1882, for the Prussian coal miners),

by Caron (1882, for the Prussian Miners' Associations), and by Dr. J. Eggenberger (1902, for the Miners' Associations of Bavaria).

With the exception of the two hypothetical tables of Dr. Zimmermann, the mortality tables thus far mentioned are average ones, in which the fact has not been taken into consideration that the expectation of life for the invalids becomes proportionately more favorable with the duration of invalidity. Persons of the same age are here summed up, no matter how long the term of invalidity, so that an average probability of mortality is arrived at, which for persons of a short time of invalidity is too low, and for persons of a longer term of invalidity too high.

Experience has shown, since the operation in Germany of the imperial law of invalidity insurance of laborers which has been in force since 1889, that Dr. Zimmermann's hypothesis ("recuperation" of invalids) is not a sufficient explanation for the decrease of mortality with the duration of invalidity, but that there are still other factors of great influence, especially the causes of invalidity, the age at which invalidity began, the term of invalidity, *i.e.* previous duration of invalidity, and also the sex. With persons of younger years tuberculosis of the lungs is the chief cause of invalidity and this accounts for the considerably increased mortality of the younger class. With greater age that cause of invalidity ceases almost entirely, and the mortality of invalids approaches more and more the general mortality. With female invalids the mortality is much lower in all ages.

In general it can be stated from the experience of German invalidity insurance, excellently summed up by the Imperial Department of Insurance, that the "recuperation" of the entire group of invalids through the elimination of the weaker elements and not the recuperation of the individual invalids, gives a more favorable result regarding mortality of persons with a longer duration of invalidity. In consequence of this, after about ten years, mortality of invalids passes over to general mortality. In order to obtain rational mortality tables of invalids, it will be necessary in the future to specify the observations according to equal duration of invalidity, and in this way the use of average tables for making up balance accounts will disappear. This request is principally made by Professor Dr. Bortkiewicz.

It must be said, however, that it will hardly be possible to comply with this demand in the near future in a satisfactory manner. The tables of the Imperial Department of Insurance can be used only in rare instances, and other tables have to be made up first. At present the German Association of Insurance Science is at work on this subject. It will still be necessary, even in the future, to employ in many cases the average tables, as the construction of special tables requires very extensive material, and this cannot always be obtained where such tables have to be established from direct experience.

RÉSUMÉ.

SUR L'ETABLISSEMENT DE TABLES DE MORTALITÉ POUR LES INVALIDES.

Par le Dr. J. Eggenberger.

L'assurance pour les invalides a existé pendant longtemps en Allemagne, bien que sous une forme primitive. Elle était pratiquée par les associations de mineurs et les sociétés de secours mutuels d'employés de chemins de fer. Le mérite d'avoir donné jour à la première forme statistique et pratique d'assurance appartient sans aucun doute aux preéminents mathématiciens pour assurances les Docteurs Carl Heym et Auguste Wiegand. Tandis que le premier a établi une hypothèse sur les probabilités d'invalidité, le second a construit avec succès des tables d'expérience de l'invalidité et de la mortalité parmi les employés de chemin de fer allemands. La première table de ce genre a été publiée par lui en l'an 1871 et il y établit le fait que la mortalité parmi les invalides décroît à mesure que l'âge avance et finit peu à peu par se confondre avec la mortalité générale.

D'autres tables de la mortalité des invalides, établies d'après les expériences matérielles parmi les employés de chemin de fer allemands, ont été faites plus tard par Behm (en 1876), Gerkrath (en 1881) et le Dr. H. Zimmermann (en

1884). Ce dernier auteur explique le fait de la diminution de la mortalité parmi les invalides d'un âge avancé par l'hypothèse que la santé des invalides s'améliore avec la durée de leurs infirmités et il est conduit à fournir d'une manière hypothétique deux tables de mortalité pour les invalides, l'une pour les invalides récents (ceux qui ne sont devenus impropres au travail que depuis moins de deux ans) et l'autre pour les invalides confirmés (ceux qui sont impropres au travail depuis déjà plus de deux ans). Ces tables montrent que la mortalité est bien plus faible parmi les derniers que parmi les premiers. De la même manière en 1882 ont été établies par Küttner des tables de mortalité pour les invalides pour les mineurs de charbon prussiens, par Caron en 1882 pour l'association des mineurs prussiens et par le Dr. J. Eggenberger en 1902 pour l'association des mineurs bavarois.

Avec à l'exception des deux tables hypothétiques du Dr. Zimmermann les tables de mortalité mentionnées jusqu'ici sont des tables moyennes dans lesquelles il n'a pas été pris en considération que l'expectative de vie pour les invalides devient successivement plus favorable avec la durée de l'invalidité et dans lesquelles on a totalisé les personnes du même âge sans tenir compte de la durée de leur invalidité, de sorte que l'on est arrivé à une probabilité moyenne de mortalité qui est trop basse pour les invalides de courte date et trop élevée pour les invalides de longue date.

Les expériences faites depuis en Allemagne d'après la loi impériale d'assurance contre les maladies des ouvriers (loi qui est en vigueur depuis 1889) ont prouvé cependant que l'hypothèse du Dr. Zimmermann sur l'invigoration des invalides n'est pas suffisante pour expliquer la diminution de mortalité proportionnellement à la durée de l'invalidité, qu'il existe, en plus, d'autres facteurs de grande influence: spécialement les causes d'invalidité; l'âge auquel elle a commencé, la durée de l'invalidité et également le sexe. La tuberculose pulmonaire est, pour les personnes d'âge encore jeune, la principale cause d'invalidité, et cette cause explique la grande augmentation de la mortalité parmi la classe la plus jeune. Dans un âge plus avancé cette cause d'invalidité cesse presque entièrement de se faire sentir, de sorte que la mortalité des invalides se rapproche de plus en plus de la mortalité générale. La mortalité est toujours beaucoup plus faible à tous les âges parmi les invalides de sexe féminin.

On peut dire d'une manière générale, que, d'après l'expérience de l'assurance allemande contre les maladies, résumée d'une manière excellente par le Bureau Impérial des Assurances, ce n'est pas l'invigoration des invalides pris séparément, mais bien l'invigoration d'un groupe entier d'invalides obtenu par les décès des plus faibles, qui donne des résultats plus favorables sur la mortalité des personnes invalides depuis plus longtemps, de sorte qu'après une période d'environ dix ans la mortalité des invalides cesse d'être supérieure à la mortalité générale. Pour obtenir des tables rationnelles de mortalité d'invalides il sera nécessaire à l'avenir de spécifier les observations suivant les durées égales d'invalidité et de cette manière on éliminera l'emploi de tables de moyennes pour établir les soldes de comptes. Cette requête émane surtout du Professeur Bortkiewicz. Il faut bien dire cependant qu'il sera difficilement possible d'obtempérer à cette requête d'une manière suffisante pendant un certain laps de temps. On ne peut se servir des tables du Bureau Impérial des Assurances que dans de rares occasions et d'autres tables doivent d'abord être établies. L'association allemande des assurances scientifiques y travaille à présent, mais il sera nécessaire, même à l'avenir, de se contenter dans beaucoup de cas des tables moyennes, car l'établissement des tables spécifiées demande des matériaux considérables d'observation que l'on ne peut pas toujour obtenir par des expériences propres aux endroits où ces tables doivent être établies.

ON THE QUESTION OF HEALTH INSURANCE FROM THE PRACTICAL POINT OF VIEW, INCLUDING TABLES.

BY

DR. J. P. JANSE.

Actuary of the "Orange Nassau" Life Ins. Co., Amsterdam.

In answering the first of the questions that were discussed at the 3rd International Congress of Actuaries at Paris in 1900, viz.: "Assurance against invalidity whether arising from sickness, old age or accident," I have principally dwelt on the assurance against risk of sickness in Holland and published the first table of sickness derived from the experiences in the years 1888-1897 of the "Caisse générale des malades d'Amsterdam."*

In the last two years no new experiences relative to insurance against risk of sickness have been published in Holland, so that the question could not be answered. However, Dr. Ch. Moser has given at page 663 of the same transactions of the 3rd Int. Congress, a table of sickness derived from the experiences of the "Caisses suisses d'assurance en cas de maladie," which has induced me to make the following short announcement:

Both tables of sickness have been derived from statistics of cases of sickness among persons who are in much the same conditions of life. A comparison between the two tables for Holland and Switzerland shows that the mean number of days of sickness during a year per member does not show great difference. It should however be borne in mind that the tables of sickness are in fact only tables of sickness-money, because as a rule the payments in case of sickness are not made from the first day of sickness and are limited to a maximum number of days per year (in Switzerland in no case exceeding a year). Several attempts have been made to supplement the statistics collected by the sickness-funds in such a way that both the first days when no payment is made and the days when no payment is made because the sickness is protracted so as to exceed the fixed maximum number of days, are included.

Especially in Italy many statistics have been collected to this effect (Annali di Statistica, 1892) and it has been made out how many days on which payments are made, there are in 1000 days of sickness, taking into consideration the day on which the first payment was made: on the 1st, 2nd . . . 7th day of sickness, and also the maximum length of the term of payment.

A similar table of reduction, derived from statistics collected at Amsterdam has been mentioned at page 150 of the transactions of the 3rd Int. Congress of Actuaries (Paris, 1900). In connection with the facts alluded to above, the table of sickness published there has been slightly modified, so that the mean number of days of sickness during a year per member has slightly increased. A comparison between the two tables of sickness for Switzerland and Holland now follows to which has been added

* Algemeen Ziekenfonds voor Amsterdam.

the table of sickness for Austria (Ambfliche Nachrichten des K. K. Ministerimus des Tunern, 1900).

Mean number of days of sickness during a year per member (males):

Age.	Switzerland.	Holland.	Austria.
20	5.39	4.77	6.2
25	4.85	5.02	6.1
30	5.41	5.47	6.8
35	6.48	6.26	7.6
40	7.24	7.25	8.5
45	7.96	8.06	9.6
50	9.82	9.22	10.7
55	12.92	12.14	12.5
60	16.12	16.26	15.2
65	19.32	20.42	19.2
70	22.59	27.35	24.2

RÉSUMÉ.

AU SUJET DE L'ASSURANCE DE SANTÉ AU POINT DE VUE PRATIQUE, TABLES COMPRISES.

Par Dr. J. P. Janse.

La première table hollandaise de maladie établie par l'auteur a été publiée avec le compte rendu du troisième congrès international d'actuaires. Il n'a pas été publié en Hollande, durant ces deux dernières années, de nouvelles expériences relatives à l'assurance contre le risque de maladie. L'auteur fait remarquer que les tables de maladie ne sont, somme toute, que des tables de coûts de maladie et il compare la table hollandaise de maladie avec les tables similaires de Suisse (par le Docteur Ch. Moser) et d'Autriche.

KURZE NOTIZ.

BETREFFEND GESUNDHEITS-VERSICHERUNG VOM PRAKTISCHEN STANDPUNKT, EINSCHLIESSLICH TABELLEN.

Von Dr. J. P. Janse.

Die erste Krankheits-Tabelle Hollands war von dem Verfasser in den Verhandlungen des dritten internationalen Congresses der Statistiker veröffentlicht worden. Es sind in Holland in den letzten zwei Jahren keinerlei neue Erfahrungen mit Bezug auf die Versicherung gegen das Risiko von Krankheit bekannt gemacht worden. Der Verfasser bemerkt, dass die Krankheits-Tabellen thatsächlich nur Krankheits-Geld-Tabellen sind und stellt einen Vergleich auf zwischen der Krankheits-Tabelle von Holland und denen von der Schweiz (von Dr. Ch. Moser) und von Oesterreich.

L'ASSURANCE CONTRE LA MALADIE EN BELGIQUE.

PAR L. DUBOISDENGHIEN,

Directeur à la Caisse générale d'Epargne et de Retraite de Belgique.

L'assurance contre la maladie n'est pratiquée en Belgique que par les sociétés de secours mutuels et par quelques caisses patronales.

Nous ne nous occuperons que des sociétés de secours mutuels. Les pouvoirs publics se sont attachés à les multiplier et à en favoriser le développement.

La loi du 3 mai 1851 leur accorde le bénéfice de la reconnaissance légale, entraînant certaines faveurs qui ont encore été largement accentuées par la loi du 23 juin 1894, revisant celle du 3 mai 1851 : les sociétés reconnues jouissent de la personnification civile et sont exemptes de certains droits de timbres et d'enregistrement; le Gouvernement peut leur accorder la franchise postale; elles peuvent seules recevoir des subsides des pouvoirs publics; enfin, les secours temporaires qu'elles accordent, ainsi que les sommes allouées à la mort d'un sociétaire ou d'un membre de leur famille, sont incessibles et insaisissables.

D'après les renseignements que l'Office du Travail a bien voulu nous communiquer, il y avait en Belgique, au 31 décembre 1900, 1,787 sociétés mutualistes *reconnues* contre la maladie et les accidents; ce nombre s'est élevé au 31 décembre 1902 à 2,035; à cette dernière date, l'effectif de ces sociétés s'élevait approximativement à 250,000 membres.

Les sociétés mutualistes *non reconnues* sont très nombreuses; mais comme elles ne sont pas tenues de fournir à la Commission Permanente et à l'Office du Travail des renseignements quelconques au sujet de leur situation, force nous est de nous abstenir de nous en occuper.

La loi du 23 juin 1894, revisant celle du 3 mai 1851, porte à son article premier :

« Seront reconnues par le Gouvernement, à la condition de se conformer aux dispositions de la présente loi, les sociétés mutualistes ayant leur siège social en Belgique, et constituées en vue d'objets appartenant exclusivement à l'une des catégories suivantes : I. *Assurer* aux sociétaires et aux membres de leur famille des secours temporaires en cas de maladie, etc.... »

Malgré cette stipulation de la loi, la plupart des sociétés mutualistes belges font une distinction formelle entre la mutualité et l'assurance; elles contestent que l'on puisse les assimiler à des sociétés d'assurances, et prétendent que les principes de la mutualité diffèrent essentiellement des principes qui doivent régir les opérations d'assurance proprement dites.

Elles se prévalent de cette distinction pour repousser catégoriquement les innovations préconisées par les actuaires. Certains auteurs vont jusqu'à prétendre que la *mutualité* se différencie nettement de l'*assurance* en ce que cette dernière « garantit une indemnité déterminée et proportionnelle à la cotisation de ses adhérents," tandis que la *mutualité* « dérive tant de son esprit purement philanthropique et fraternel que de son caractère exclusif de tout engagement ferme et déterminé.»*

* La *Mutualité en Belgique*, par MM. Soenens et Perpete, Bruxelles 1901.

Cette thèse est évidemment en contradiction avec les termes de la loi; elle n'est d'ailleurs pas sans dangers. Il va de soi, en effet, qu'elle enlève tout caractère de sécurité aux associations mutualistes, au grand détriment des affiliés, qui demandent avant tout à être garantis, assurés contre un risque; de plus, elle couvre la responsabilité des organisateurs de mutualités qui, oubliant toute loi de sagesse et de prudence, fixent empiriquement les cotisations et les indemnités en dehors de toutes considérations d'équilibre préalable entre les unes et les autres.

« Une des principales causes des déboires qu'ont éprouvés beaucoup d'associations,» écrit M. *Léon Marie,* « réside certainement dans la distinction qu'on a voulu établir, sans la moindre apparence de raison, entre l'assurance et les opérations des sociétés de secours mutuels.»

Nous partageons pleinement cette opinion.

Malheureusement, bon nombre de sociétés mutualistes ne satisfont pas à une condition essentielle pour qu'elles puissent fonctionner comme de véritables organismes d'assurances: elles n'ont pas un nombre suffisant de membres effectifs. Près des deux tiers des sociétés belges reconnues ne comptent pas 100 membres, plus des huit dixièmes comptent moins de 200 membres.

Le tableau ci-après, qui nous a été obligeamment communiqué par l'Office du Travail de Belgique, donne des indications à cet égard.

Sociétés Mutualistes reconnues d'assurance contre la Maladie et les Accidents au 31 Décembre 1900.

Province	Sociétés comptant moins de 100 membres. Nombre de		Sociétés comptant 100 à 200 membres. Nombre de		Sociétés comptant plus de 200 membres. Nombre de		Total des	
	Stés.	Mbres.	Stés.	Mbres.	Stés.	Mbres.	Stés.	Mbres.
Anvers	51	2,418	19	2,501	26	12,588	96	17,507
Brabant	184	9,336	61	8,140	39	17,321	284	34,797
Flandre Occ	77	4,355	53	7,175	28	10,300	158	21,830
Flandre Or	118	6,295	58	8,000	39	17,403	215	31,698
Hainaut	288	14,017	104	14,503	50	21,062	442	49,582
Liège	172	7,724	48	6,927	28	13,969	248	28,620
Limbourg	27	1,262	5	677	4	1,953	36	3,892
Luxembourg	35	1,413	9	1,209	2	549	46	3,171
Namur	166	7,967	18	2,575	6	1,473	190	12,015
Le Royaume	1,118	54,787	375	51,707	222	96,618	1,715	203,112

NOTE.—Le nombre de sociétés mutualistes reconnues d'assurance contre la maladie et les accidents au 31 Décembre 1900, s'élève à 1,787 dont 72 n'ont pas communiqué les comptes de leurs opérations.

Sur 1,715 sociétés relevées au 31 décembre 1900, on ne compte donc que 222 sociétés ayant un effectif de plus de 200 membres.

Si l'on assigne l'assurance comme but des sociétés mutualistes, on ne peut que regretter l'existence de nombreuses associations impuissantes, à cause de leur faible effectif, à accomplir convenablement leur mission.

Nous sommes d'avis que les opérations des associations mutualistes qui ont pour objet de garantir leurs membres contre le risque de maladie, pouvant être assimilées à de véritables opérations d'assurances, doivent

être régies par les règles et les principes généraux de l'organisation rationnelle des institutions d'assurances.

Il ne peut évidemment être question d'exposer, devant un Congrès d'actuaires, les conditions d'ordre technique auxquelles doivent satisfaire ces institutions.

Nous ne croyons cependant pas inopportun de faire connaître au Congrès les règles qui sont préconisées par les actuaires belges, en matière d'assurances mutuelles contre la maladie.

1°. *Principe de la péréquation des ressources et des charges:* Il faut fixer les cotisations et les indemnités de manière qu'il y ait entre elles un lien rationnel, qu'à l'entrée de chaque membre, la condition d'équilibre entre les engagements qu'il prend envers l'association et les engagements que l'association prend envers lui, soit autant que possible satisfaite.

2°. *Comptabilité:* Il faut que l'association tienne une comptabilité rationnelle et complète; elle doit dresser périodiquement son bilan technique, comprenant essentiellement au passif la valeur de ses engagements envers ses membres.

3°. *Statistiques:* Il est indispensable que la société observe et note soigneusement les faits réels, pour les comparer aux faits attendus d'après les tables de risques qu'elle a adoptées, afin de déterminer le coëfficient de risque qui lui est particulier, et de pouvoir corriger judicieusement, s'il y a lieu, les tables de risques en question.

Tels sont les principes que doit observer, selon nous, toute association mutualiste soucieuse de traiter équitablement les diverses catégories de ses membres.

Nos sociétés de secours mutuels sont loin d'y satisfaire; presque toujours elles fixent les cotisations et les indemnités de la manière la plus empirique; le plus généralement les cotisations sont uniformes, quel que soit l'âge d'entrée, et les droits d'entrée sont manifestement fixés au hasard. La comptabilité est rudimentaire: elle se borne à la tenue d'un simple compte de recettes et de dépenses. La statistique est presque toujours incomplète, insuffisante pour éclairer la société au sujet de la morbidité spéciale de ses membres.

Dans notre pensée, l'observation des principes que nous venons de formuler ne doit pas nécessairement entraîner la détermination de la valeur du risque de maladie avec autant de précision que lorsqu'il s'agit de risques beaucoup mieux connus, le risque de décès, par exemple.

Nul n'ignore que la loi de la morbidité est beaucoup moins bien déterminée que la loi de la mortalité; nous estimons que l'application rigoureuse des règles de la science actuarielle, parfaitement à sa place en matière d'assurance sur la vie, serait une superfétation et conduirait à des complications inutiles, lorsqu'on a en vue l'assurance des risques de maladie, d'invalidité ou d'accidents. En résumé, nous pensons que s'il est de tout nécessité de respecter les principes énoncés plus haut, il convient, dans la pratique, de rechercher des méthodes simples, à la portée des mutualistes pratiquants, et il nous paraît même opportun de sacrifier au besoin la question de précision à la question de simplicité des méthodes: il s'agit avant tout d'éviter certaines difficultés qui soient de nature à rebuter les mutualistes soucieux, avec raison, de faire leurs affaires eux-mêmes; il importe surtout de ne pas laisser perdurer cette idée que l'organisation technique des mutualités impliquerait l'intervention d'un spécialiste, d'un actuaire qu'il faudrait rémunérer. Rien n'est moins exact, d'ailleurs, et ce serait faire injure à la plupart des administrateurs des sociétés de secours mutuels, que de les supposer incapables de lire

et de comprendre des tableaux clairs et précis et d'en utiliser les données, ce qui n'exige en réalité que la connaissance des quatre règles fondamentales de l'arithmétique élémentaire: tout le fonctionnement technique d'une société de secours mutuels contre la maladie repose en effet sur les données d'un barême fondamental donnant d'une part la valeur actuelle de l'unité, d'indemnité par jour de maladie et, d'autre part, la valeur actuelle de l'unité de cotisation.

De simples opérations d'arithmétique fournissent tous les éléments nécessaires: on déduit le plus aisément du barême fondamental les cotisations, les droits d'entrée et les réserves mathématiques.*

Il existe d'ailleurs en Belgique une Commission Permanente des Sociétés mutualistes et un Office du Travail comprenant un service spécialement créé en vue de fournir des renseignements de tous genres aux mutualités; il va de soi que ces deux institutions seraient toutes désignées pour aider les associations mutualistes désireuses d'entrer dans la voie d'une gestion raisonnée et d'une organisation rationnelle.

Les actuaires belges se sont attachés spécialement, en matière de mutualité, à rassurer les mutualistes pratiquants au sujet de l'application des principes techniques; leur organe, le *Bulletin de la Prévoyance,* a traité souvent cette question et a fait ressortir l'absence de difficultés d'ordre technique dans la gestion rationnelle des sociétés mutualistes.

Nous devons malheureusement convenir que jusqu'à présent les actuaires ont un peu prêché dans le désert; les mutualistes s'en tiennent obstinément aux anciens errements; quelques-uns cependant, et non les moins influents, admettent la thèse des actuaires, et font des efforts des plus louables pour faire partager leurs idées par leurs amis.

Il est vrai que les actuaires ne comptaient pas sur des résultats immédiats: il s'agit, en effet, d'une réforme complète dans un ordre d'idées et de traditions qui ont cours en Belgique depuis plus d'un demi-siècle.

Cependant, il serait à déplorer que les conséquences d'une gestion imprudente et de l'inobservance des règles les plus élémentaires d'une bonne comptabilité, fissent, dans un avenir peut-être moins éloigné qu'on le suppose, un tort considérable à la belle cause de la mutualité.

Une des principales raisons de l'insuccès réel et regrettable, à notre avis, des idées générales défendues par les actuaires réside dans le fait que nous avons signalé au début du présent rapport: la croyance très répandue dans la plupart des milieux mutualistes, qu'il y a une distinction profonde entre *l'assurance* et la *mutualité.*

A ce sujet, nous ne pouvons mieux faire que de reproduire les éloquentes paroles de M. *Georges Paulet,* Directeur de l'Assurance et de la Prévoyance sociales en France, au cours d'une allocution prononcée à la Sorbonne, le 22 mars 1903, lors de l'Assemblée générale de la Mutualité Commerciale:

« C'est qu'en effet l'idée et la pratique méthodique de l'assurance, avec les circonspections qu'elles requièrent et les garanties qu'elles impliquent, deviennent de plus en plus la condition même du développement normal des sociétés des secours mutuels, au fur et à mesure que s'étendent et leurs ambitions et leurs conquêtes.

« N'en faites pas d'ailleurs ingénument grief, comme d'aucuns, aux actuaires du XX^e^ siècle. Dès 1850, dès la première charte légale de la mutualité, les esprits clairvoyants l'attestaient déjà. « Les sociétés de secours mutuels » — écrivait en 1852 le secrétaire du Comité pour la propagande des sociétés de prévoyance — « doivent être considérées,

* Voir à ce sujet le *Bulletin de la Prévoyance,* Année 1902, N° 4.

non comme des établissements de charité, mais comme des établissements *d'assurance mutuelle* » : c'est le mot même qu'employait encore à l'instant votre Président. Et combien cette définition ne s'impose-t-elle pas plus, depuis que la législation de 1898 a si libéralement élargi le cadre de la mutualité, au risque même de laisser place peut-être à quelques imprudences ? Cette conception nécessaire, qui peut bien déconcerter encore quelques routines paresseuses ou quelques susceptibilités attardées, ralliera finalement toutes les sociétés dignes de grandir et soucieuses de ne pas tromper l'espoir qu'on met en elles.

« Car, pour qui ne se laisse pas duper au sortilège des mots, la mutualité vraie, celle que vous pratiquez, celle que vous entrevoyez dans vos tentatives nouvelles, celle que nous voulons tous, j'en suis sûr, ce n'est pas une illusoire mutualité louable d'efforts incertains pour des résultats indéterminés, ni encore une mutualité de réalisations partielles, dont l'intégral effet resterait subordonné à l'appoint, toujours précaire, de cotisations d'honorariat ou de libéralités sans lendemain. Il y faut la prudence initiale qui proportionne rigoureusement les ressources aux engagements ; il y faut les données d'une statistique exacte, la sûreté des calculs mathématiques, le souci scrupuleux de faire à la créance de chacun une contrepartie toujours présente et toujours entière.»

Ces paroles s'appliquent admirablement à la situation de la mutualité belge. Elles constituent à la fois un enseignement et un avertissement dont nous souhaitons que nos mutualistes tiennent compte.

Une autre raison est invoquée en faveur du maintien du régime actuel : on prétend que les sociétés de secours mutuels ont en vue un risque à courte échéance, et que dès lors elles peuvent se contenter de vivre au jour le jour. Nous ne pouvons admettre cet argument : il est en effet hors de doute que le risque de maladie est croissant avec l'âge, et, par conséquent, de même nature que le risque de décès. Nous estimons qu'une société de secours mutuels, qui vivrait au jour le jour, c'est-à-dire qui dépenserait la presque totalité de ses recettes sans se préoccuper de l'avenir, commettrait, toute proportion gardée, une imprudence comparable à celle d'une société d'assurances sur la vie qui fonctionnerait sans constituer de réserves, sans tenir compte de la progression de la mortalité avec l'âge de ses assurés.

A notre avis, les sociétés mutualistes ont pour devoir de déterminer approximativement leur passif, elles ne peuvent se dispenser de calculer périodiquement leurs réserves.

Il nous paraît évident que, dans bien des cas, c'est le bilan technique complet qui permet à la société de se rendre compte des imprudences auxquelles elle a pu se laisser entraîner par l'illusion d'une apparence de prospérité résultant de l'accroissement continu de son capital.

De trop nombreuses sociétés constateraient avec surprise, si elles avaient la sagesse de dresser leur bilan technique, que leur situation réelle est loin d'être rassurante : l'expérience montre que la plupart se laissent éblouir par l'existence d'un capital accumulé et la constatation d'une série d'exercices clôturant par un excédent des recettes sur les dépenses ; elles se croient très riches, souvent bien à tort, car elles n'ont pas la précaution de mettre en regard de leur actif, la valeur totale de leur passif ; elles sont ainsi fatalement amenées à atténuer la rigueur de leur surveillance en vue de combattre la simulation, à augmenter inconsidérément leurs prestations, à promettre de grosses indemnités de frais de funérailles, à se créer de nouvelles charges sans augmenter les ressources. Une tendance dangereuse semble se généraliser en Bel-

gique : c'est l'extension inconsidérée des divers services de nos sociétés mutualistes ; ordinairement elles bornent au début leurs prestations à des secours en cas de maladie et d'accidents et aux frais funéraires ; elles ont à peine accumulé quelques ressources, qu'elles s'empressent de chercher à résoudre la question des veuves et des orphelins, à créer une caisse de retraite, etc., le tout sans exiger des cotisations spéciales en vue de ces nouvelles prestations.

Il nous paraît certain que ces imprudences ne sont que le résultat de l'ignorance des dirigeants des sociétés quant à la situation réelle, qui ne peut être réflétée que par un bilan technique.

C'est pourquoi nous pensons qu'il est urgent d'engager vivement les associations mutualistes à tenir une comptabilité complète et à dresser périodiquement leur bilan : cette pratique les éclairerait sur leur véritable situation, et les mettrait certainement en garde contre des exagérations dont les conséquences peuvent être très regrettables.

Enfin, un argument des mutualistes en faveur du maintien des anciens errements réside dans la constatation de l'inexistence de tables de morbidité en Belgique. Cet argument a certaines apparences de fondement. La loi belge du 23 juin 1894 porte à son article 34, que « *le Gouvernement fera établir des tables de risques spécialement dressées pour les sociétés mutualistes.* »

Depuis 1896, l'Office du Travail réunit les documents statistiques nécessaires à l'établissement de ces tables, mais jusqu'à présent aucune publication n'a encore été faite à ce sujet.

« Il faut attendre — disent certains mutualistes dont la bonne volonté ne peut être mise en doute — que les tables de risques par âges, par profession et par région à l'élaboration desquelles le Gouvernement travaille actuellement, aient paru. »

Sans aucun doute, les tables de risques belges constitueraient un très précieux instrument, permettant une détermination très approximative des charges qui pèsent sur nos sociétés mutualistes.

Mais en attendant, elles peuvent, faute de mieux, utiliser une table de morbidité étrangère ; nous n'avons pas hésité, pour notre part, à nous servir de la table de morbidité de *Kinkelin*, corrigée, suivant les circonstances, par un coëfficient approprié. L'intensité de la morbidité varie d'ailleurs à tel point, suivant les milieux, et surtout suivant la définition toute conventionelle que l'on adopte au sujet de l'unité statistique fondamentale, le jour de maladie, qu'il paraît probable que chaque société devrait élaborer elle-même sa table de morbidité. Dans ces conditions, on peut se demander si une table générale indiquant l'allure générale de la loi de progression du nombre de jours de maladie d'après l'âge, ne suffirait pas, au moins pour le moment, quitte à l'adapter à une société particulière en déterminant par l'expérimentation le coëfficient du risque spécial à cette société.

Le risque de maladie est celui qui atteint le plus fréquemment le salarié et contre lequel celui-ci doit, s'il est prévoyant, se prémunir en tout premier lieu : nous croyons qu'il est indispensable de donner à l'ouvrier le moyen sûr et efficace de se garantir, de *s'assurer* contre le risque de maladie. Ce que nous en avons dit montre que les sociétés de secours mutuels en Belgique sont loin de réunir toutes les conditions de sécurité désirables.

Cependant il serait injuste de ne pas rendre hommage au dévouement désintéressé de la plupart de nos mutualistes pratiquants. On ne peut nier que leur propagande active n'ait produit d'excellents résultats.

C'est en grande partie à leurs efforts méritants que l'on doit le développement de l'esprit de prévoyance dans les classes laborieuses.

Pour parfaire leur œuvre, il leur reste à perfectionner les associations qu'ils ont créées en vue de permettre aux travailleurs de se garantir contre le risque de maladie, à prendre les mesures nécessaires à la conservation de ces organismes — en un mot, à assurer leur pérennité par l'adoption des principes et des règles qu'indiquent l'expérience et la science.

L'action persévérante des actuaires en Belgique n'a d'autre but que d'asseoir les associations de mutualité et de prévoyance sur des bases solides, de mettre les organisateurs de sociétés mutualistes en garde contre les imprudences auxquelles ils se laissent trop souvent entraîner par l'ignorance ou l'oubli des principes fondamentaux qui doivent être respectés si l'on veut faire œuvre durable et réellement efficace.

Nous ne pouvons terminer sans signaler une tentative des plus louables, et qui nous paraît appelée à rendre de réels services à la cause de la mutualité scientifique: nous voulons parler de la Caisse d'indemnités pécuniaires en cas de maladie et d'accidents, créée récemment, en faveur du personnel de la Caisse Générale d'Épargne et de Retraite. Cette société nous paraît répondre, dans la mesure du possible, à toutes les exigences techniques.

Ses statuts seront probablement publiés dans le compte-rendu des opérations de la Caisse Générale d'Épargne et de Retraite pendant l'année 1902, et seront reproduits dans le *Bulletin de la Prévoyance.*

ABSTRACT.

SICKNESS INSURANCE IN BELGIUM.

By L. Duboisdenghien.

Sickness Insurance is practiced in Belgium principally by the Friendly Societies.

According to the law of June 23, 1894, revising the law of May 3, 1851, the Friendly Societies obtained legal recognition, provided they comply with a number of specified conditions.

This legal recognition involves a number of special advantages, such as civil personification, exemption from certain laws as to stamps and registration, free use of the mails, etc.

There were in Belgium, on December 31, 1900, 1787 registered Mutual Sickness and Accident Societies; they increased to 2035 on December 31, 1902, with a membership of about 250,000.

Generally the societies do not fulfil the necessary requirements of a safe and rational organization; their bases are entirely empirical; too many of them increase their loans without taking into consideration whether or not their assets are adequate. It seems, however, that they begin to understand the necessity of technical rules and are inclined to adopt them.

The Belgian actuaries have all along emphasized the necessity of observing the principle of the equal distribution of resources and charges, and also of having a complete system of accounting. They especially endeavor to demonstrate to the officials of these societies that Friendly Societies can be easily and scientifically managed.

KURZE NOTIZ.

ÜBER DIE VERSICHERUNG GEGEN KRANKHEITSFÄLLE IN BELGIEN.

Von L. Duboisdenghien.

Die Versicherung gegen Krankheitsfälle wird in Belgien hauptsächlich von den wechselseitigen Unterstützungs-Vereinen besorgt.

Laut Gesetz vom 23. Juni 1894 — durch welches dasjenige vom 3. Mai 1851 verbessert wurde — ist die gesetzliche Anerkennung der wechselseitigen Unterstützungs-Vereine bestätigt worden, unter der Voraussetzung, dass sie eine Reihe besonderer Bedingungen erfüllen.

Die gesetzliche Anerkennung schliesst gewisse specielle Vortheile in sich, unter anderen die Civil-Personifizierung, die Befreiung von gewissen Stempel- und Registrierungs-Taxen, den portofreien Briefversandt, etc. etc.

Am 31. December 1900 gab es in Belgien 1787 anerkannte wechselseitige Versicherungsvereine gegen Krankheit und Unglücksfälle. Diese Anzahl steigerte sich bis zum 31. December 1902 auf 2035 und in der That die Mitglieder dieser Vereine belaufen sich auf annähernd 250,000.

Im Allgemeinen erfüllen diese Vereine die unerlässlichen Bedingungen einer sicheren und rationellen Organisation nicht; dieselben stützen sich auf vollständig erfahrungsgemässe Grundsätze. Eine grosse Anzahl derselben dehnt ihre Verpflichtungen zu weit aus, ohne in Berücksichtigung zu ziehen, ob ihre Ressourcen hinreichend sind. Es scheint dennoch sich ein Streben zu Gunsten der Annahme von technischen Regeln kundzuthun.

Die belgischen Statistiker haben stets die Nothwendigkeit der Annahme des Princips der Berücksichtigung der Ressourcen und der Unkosten, sowie einer completen Buchführung und einer rigorosen Statistik hervorgehoben. Sie verweisen die Gesellschafts-Organe speciell darauf, dass die Verwaltung der wechselseitigen Unterstützungs-Vereine auf wissenschaftlicher Grundlage keine besonderen Schwierigkeiten bereitet.

SICKNESS ASSURANCE BY FRIENDLY SOCIETIES IN GREAT BRITAIN.

BY

A. W. WATSON, F.I.A.,

One of the Actuaries to the Manchester Unity of Odd Fellows and a Public Valuer under the Friendly Societies Act.

The question of assurance against invalidity, whether arising from sickness, old age, or accidents, was considered at length by the Third International Congress, and by it referred to the following Congress in order that papers might be prepared which would enable the subject to be studied "from the practical point of view." I have been requested to prepare the desired statement respecting the statistics of health insurance in Great Britain.

I may remind the Congress, at the outset, that much of the ground has been covered by the paper read before the last Congress by Mr. Neison. This paper places the historical features of the subject so fully before the reader that there is little for me to do, so far as these are concerned, but to bring the record of investigations up to the present date. In dealing with the particular matter of the reference, as indicated by the resolution of the last Congress above referred to, I find that it will be necessary to take a rather free hand. This resolution calls for the preparation of "Tables of mortality of invalided persons." "Invalided persons" may be defined, I assume, as persons who are permanently disabled by sickness, accident (whether received in the course of their employment or otherwise), or the infirmity of age, and the resolution presupposes the existence of adequate data as to the life experience of such persons. Unfortunately, no such body of data is procurable. The records of permanent disablement which exist in this country are only to be found in the experience of the friendly societies, the railway provident funds or societies, the permanent relief societies of miners, and the various societies connected with other large industrial undertakings. The purposes of these institutions have not been considered to require the tabulation of their experience in the form indicated by the resolution, and probably in no case could the specific information therein called for be supplied. The utmost, therefore, that can be done is to submit such authentic data as is available, and in the form in which it has been recorded for the purposes of the institutions from the experience of which it has been gathered. Disablement by accident sustained in the course of the employment entitles the workman in certain industries to compensation from the employer, but this law has been in operation only since 1898, and even if any valid returns of its working, with reference to the particular subject of the resolution of the last Congress, were in existence, they would be too scanty to afford reliable data. In any case, it is unlikely that the question raised by the resolution would be satisfied by the records of the working of this Act. The responsibility of compensating the workman lies with the individual employer, insurance is not compulsory, and it is understood to be far from general. It is thus very doubtful whether any data that could be gathered would be worthy of the analytical skill of the actuary.

The largest bodies of data collected in Great Britain in respect of disablement, either temporary or permanent, are those obtained from the records of the friendly societies granting "sickness" benefits; the condition of sickness being usually understood as the inability of the

individual, from physical causes, to follow his occupation. The various collections of experience which had been published during the latter half of the nineteenth century were described in the paper submitted by Mr. Neison to the last Congress, and need not, therefore, be further explained. I am, however, able to add to them a description of the main features of the largest collection of friendly society experience which has been hitherto obtained, and the results of which, with monetary tables based thereon, have just been published. The experience in question is that of the Manchester Unity of Odd Fellows for the period 1893-97, being the fourth "experience" published by this society. The data have been supplied by 3,569 branches, all situate in the United Kingdom, and comprise 3,180,378 years of life exposed to the risk of mortality and 2,995,724 years exposed to the risk of sickness, with 39,061 recorded deaths, and 7,022,438 recorded weeks of sickness. Among the distinguishing features of this experience are (1) the large number of facts obtained with reference to the senile period of life, (2) the great increase discovered in the quantity of permanent sickness claims (actual and relative), and (3) the applicability of the experience to modern conditions, and its consequent superiority in value to former tabulations, the latest of which (Sutton's, 1876-80) refers to a period expiring thirteen years before the present experience began. As these features have a direct bearing on the subject discussed by the last Congress, it is thought that the experience may be worth examination.

The following is a summary of this experience:

TABLE I.

Independent Order of Odd Fellows, Manchester Unity, Summary of Sickness and Mortality Experience, 1893-97 (all districts combined).

AGES	Years of life exposed to risk of sickness	Weeks of sickness	Years of life exposed to risk of death	Deaths
16 to 19	101,912	93,553	149,768	368
20 " 24	434,117	389,259	486,149	1,815
25 " 29	468,235	447,089	501,031	2,302
30 " 34	433,525	461,392	452,903	2,481
35 " 39	368,474	466,140	378,965	2,649
40 " 44	310,484	490,721	316,363	3,010
45 " 49	257,359	511,085	260,349	3,062
50 " 54	213,469	586,239	216,042	3,649
55 " 59	163,886	659,634	166,310	4,025
60 " 64	110,375	696,121	112,605	4,011
65 " 69	63,323	670,224	65,173	3,525
70 " 74	39,302	683,910	41,003	3,318
75 " 79	21,195	532,925	22,578	2,718
80 " 84	7,861	253,691	8,629	1,524
85 " 89	1,941	70,099	2,197	511
90 " 94	247	9,604	288	82
95 " 99	19	752	25	11
Totals	2,995,724	7,022,438	3,180,378	39,061

It will be observed that the number of years of life exposed to risk of mortality at ages sixty-five and upward was 139,893 against

32,200 by the Manchester Unity Experience, 1866-70.

18,453 by the Foresters' Experience, 1871-75.

59,581 by the Registered Friendly Societies Experience, 1876-80.

The following tables exhibit the rates of sickness and mortality in the

successive age groups shown by the new experience and by the more important of its predecessors.

TABLE II.

Rates of Sickness shown by various friendly society experiences (England and Wales).

AGES	Rate of sickness per member per annum (weeks)			
	Manchester Unity of Odd Fellows 1866-70	Ancient Order of Foresters 1871-75	Registered Friendly Societies 1876-80	Manchester Unity of Odd Fellows 1893-97
16 to 19	.54	1.04	.88	.92
20 " 24	.75	.82	.85	.90
25 " 29	.81	.85	.87	.95
30 " 34	.93	.97	1.02	1.06
35 " 39	1.06	1.15	1.24	1.27
40 " 44	1.26	1.37	1.47	1.58
45 " 49	1.64	1.71	1.89	1.99
50 " 54	2.22	2.27	2.39	2.75
55 " 59	3.05	3.21	3.36	4.02
60 " 64	4.72	4.59	5.17	6.31
65 " 69	7.24	7.97	8.73	10.59
70 " 74	12.06	12.00	14.46	17.40
75 " 79	16.87	17.66	20.27	25.15
80 " 84	20.59	20.92	27.36	32.27
85 " 89	29.63	*	30.86	36.12
90 " 94	*	....	29.29	38.89
95 " 100	....	....	39.07	38.57

* Data from this age too limited for useful comparison.

TABLE III.

Rates of Mortality shown by various friendly society experiences (England and Wales).

AGES	Rate of Mortality per 100 members per annum			
	Manchester Unity of Odd Fellows 1866-70	Ancient Order of Foresters 1871-75	Registered Friendly Societies 1876-80	Manchester Unity of Odd Fellows 1893-97
16 to 19	.46	.94	.73	.25
20 " 24	.64	.74	.57	.37
25 " 29	.76	.73	.62	.46
30 " 34	.82	.89	.78	.55
35 " 39	.98	1.09	.98	.70
40 " 44	1.26	1.28	1.16	.95
45 " 49	1.43	1.66	1.48	1.17
50 " 54	1.91	2.05	1.90	1.69
55 " 59	2.49	2.97	2.78	2.42
60 " 64	3.54	3.80	3.91	3.56
65 " 69	5.21	5.84	5.71	5.41
70 " 74	7.81	8.00	8.07	8.09
75 " 79	9.95	14.26	12.15	12.04
80 " 84	11.88	16.03	16.01	17.66
85 " 89	19.61	*	22.62	23.26
90 " 94	*	....	21.57	28.47
95 " 100	....	....	26.67	44.00

* Data from this age too limited for useful comparison.

It will be seen from Table II. that the annual rate of sickness per member exposed to risk has substantially increased since the earlier

periods the experience of which is presented by the Manchester Unity tabulation of 1866-70, and the Foresters tabulation of 1871-75; also, that at nearly all groups of ages the new Manchester Unity Experience shows a greater rate of sickness than the Registered Friendly Societies Experience, 1876-80, which, until the completion of the new data, presented the maximum standard sickness liability recorded.

The results with reference to mortality (Table III.) show considerable departures from former experiences, but in the contrary direction (except at the later ages) to those in respect of sickness. Up to age 70 the death rates exhibited by the new Manchester Unity Experience are lower than those of the Registered Friendly Societies Experience, 1876-80, and much lower than those of the Foresters and earlier Manchester Unity Experiences. Whatever may be the causes which have produced an augmented rate of sickness claim, it seems clear that the effects of the improvements in sanitary science and in the social condition of the industrial classes which distinguished the latter part of the nineteenth century are discernible in the great reduction of the death rates.

It has been remarked previously that the friendly societies of the type of which the Manchester Unity and Foresters are conspicuous examples, present the largest and most reliable body of data procurable respecting permanent disablement, and the portions of the new experience and of its predecessors which bear upon this subject may, therefore, be usefully examined. In drawing attention to such experience I would remind the reader that permanent incapacity is very much a matter of supervision, both medical and administrative; and that the self-interest which, theoretically, might be presumed to dominate the managers of such purely mutual institutions as the English friendly societies is frequently subordinated, especially in the wealthier of these bodies, to the promptings of sympathy and kindly tolerance, with the result that the moral qualities of the individual frequently exercise too large a part in the measurement of the disability risk. The aggregation of a large number of experiences such as is here presented will exhibit a true average of the liability as it has eventuated, but the constant increase of the claim-rate from period to period needs explanation. Such explanation is probably to be found, in great measure, in the growth of the funds of the friendly societies, leading, on the one hand, to an increase in the habit of leaning on the societies, and on the other hand, to an imprudent relaxation of restrictions formerly considered necessary for the common protection.

For those who are not well acquainted with the system of the English Friendly Societies, the table next given may be further prefaced by the explanation that it is customary with these societies to limit the full weekly sick pay to a given period, in many cases the first six months of incapacity, a reduced benefit—frequently one-half of full pay—being granted after this period. In many societies this reduced allowance is further diminished after a similar period of claim to that for which full pay was allowed. In order to provide a measure of the effect of these reductions it has been customary to divide the sickness claims into "periods of attack," and the average claim-rates at the two periods, "first twelve months of sickness" and "remainder of sickness after twelve months," may be taken to indicate sufficiently nearly for practical purposes the average rates of claim, per member per annum, for *temporary* and *permanent* incapacity respectively. Such claim-rates at quinquennial intervals of age, as presented by the four investigations last named, are accordingly given in Table IV.

TABLE IV.

Analysed Sickness Rates. English Friendly Societies (four investigations).

AGES	Manchester Unity Experience, 1866-70		Foresters' Experience, 1871-75		Registered Friendly Societies' Experience, 1876-80		Manchester Unity Experience, 1893-97		Ages
	Annual sickness per member, in weeks		Annual sickness per member, in weeks		Annual sickness per member, in weeks		Annual sickness per member in weeks		
	First 12 months of illness	After 12 months of illness	First 12 months of illness	After 12 months of illness	First 12 months of illness	After 12 months of illness	First 12 months of illness	After 12 months of illness	
22	.72	.01	80	.02	.80	.07	.85	.05	22
27	.76	.05	.80	.05	.78	.08	.86	.10	27
32	.84	.08	.87	.09	.88	.15	.92	.15	32
37	.93	.13	.99	.15	1.00	.24	1.02	.24	37
42	1.07	.21	1.15	.23	1.15	.32	1.19	.39	42
47	1.31	.36	1.37	.35	1.39	.50	1.39	.59	47
52	1.66	.56	1.69	.61	1.68	.72	1.71	1.03	52
57	2.19	.95	2.10	1.11	2.09	1.26	2.22	1.80	57
62	3.03	1.78	2.76	1.86	2.91	2.31	2.99	3.38	62
67	4.31	3.22	4.05	4.05	3.99	4.88	3.94	6.81	67
72	5.59	6.51	5.21	6.79	5.04	9.75	4.80	12.81	72
77	6.41	10.69	6.57	10.95	5.42	15.48	5.01	20.70	77

The data presented by the experience of the Manchester Unity and the Foresters' societies have the advantage of homogeneity—so far as homogeneity is attainable in the working of friendly societies—inasmuch as they are drawn from the records of bodies similarly constituted, animated by common aspirations, in free communication with each other, and linked together by such federal bonds as insure a certain uniformity of system and method. The Registered Friendly Societies supplying the data of 1876-80 cannot be fairly described as a homogeneous body in this sense, but it is probable that the great majority of them were constituted similarly to the branches of the Odd Fellows' and Foresters' societies so far as concerned the system of benefits, and they may perhaps be fairly joined with those societies as presenting a sickness experience purporting to be representative of *total incapacity,* i.e. physical unfitness to undertake *any* remunerated labour, and as applying the most effective form of control attainable—namely, local and interested supervision.

There are other important friendly societies in some of which the qualifications for permanent sickness benefit are different from those recognised by the affiliated orders, and in most of which the supervision is less easy and therefore less effective than that which the orders can apply.

Examples of the sickness experience of various large societies of these types are given in Table V. Society "A" is a large association of some 80,000 members, the local branches of which administer such domestic matters as receipt of contributions and payment of sick members, and undertake the important duty of supervision, but the funds of which are aggregated and administered by a central executive. The defect in a system which, theoretically, is admirable is the supervision of sickness cases, the feeling of personal interest being undoubtedly weakened by the consideration that the payments are made from a centralized and, geographically speaking, distant fund. It is due to the executive to say that they are fully aware of this weakness, though they have hitherto been unable to discover a remedy for it.

Society "B" is a centralized society possessing some 250,000 members, the affairs of which are wholly administered by the central office. This society differs, or did differ in the period of which the experience is given, from most of the other societies herein referred to in that it allowed members in receipt of permanent sick pay, called "superannuation," to follow some light employment bringing in not more than a stipulated small weekly income.

Society "C" is a large society of the "County" type, consisting of some 10,000 members and managed by a central executive, in which the clergy and gentry of the locality are prominent. The difficulty in this case also is that of local supervision of the disbursement of funds drawn from a central source.

The experience of this society is given for three periods, 1885-89, 1890-94, and 1895-99. It is understood that on receiving the report of the actuary drawing attention to the excessive permanent claims in the first period, the society proceeded to consider its experience and to devise means for its amelioration. The principal of the measures ultimately applied was a reduction of the benefit from continuous half-pay to continuous quarter-pay, which was brought into operation toward the end of the second quinquennial period, and the full effects of which are only to be seen by reference to the experience of the third priod.

Society "D" is a small centralized society of some 2,000 members, the office of which is in London, and the members of which are believed

to reside chiefly in the metropolitan area. The rules provided that members might receive permanent allowances when rendered incapable, from incurable sickness, lameness, blindness, or infirmity resulting from old age, of earning more than three-quarters of the weekly full pay. The experience of this society with that of Society "B" is specially interesting as illustrating the effect of a promise to pay permanent benefit for infirmity of age resulting in a *diminished* earning capacity as distinguished from total incapacity. The experience of this society is given for two periods, the second exhibiting the effects of such increased stringency of supervision as, having regard to the wide provisions of the rule, the executive felt at liberty to enforce when made acquainted with the full effect of the experience of the first period.

Society "E" is a railway provident society with a membership which averaged about 7,000 during the fifteen years the experience of which is given. This society had in its rules a provision for "pension" benefits. This was originally intended as a permanent allowance for actual incapacity, but, owing to a lax rule, had been interpreted with considerable freedom both by the members and by the employers (who contributed largely to the funds), and had practically come to be regarded as an old-age benefit claimable on voluntary or enforced retirement from the service on account of age without reference to the actual physical condition of the retirant. This provision was in force during the whole period over which the experience cited had obtained.

A comparison of the several claim-rates for the period "after twelve months of sickness" as set forth in Tables IV. and V. yields results of considerable value.

Taking the Registered Friendly Societies Experience, 1876-80, as the standard, disregarding the earlier tabulations and confining attention to the later ages at which the results of different qualifications for benefit and different methods of supervision would be most apparent, the following interesting results present themselves.

At age 62 the standard (Friendly Societies, 1876-80) rate of claim in the "after twelve months" period, is 2.31 weeks. In the Manchester Unity Experience, 1893-97—a body of data of similar character to that of the standard—the rate is 3.38 weeks, thus presenting a considerable excess. This is perhaps attributable in some degree to the tolerant attitude which the possession of substantial reserves appears to foster, notwithstanding that the accumulated funds are largely under the control of those responsible for the supervision. In Society "A," less wealthy than the organization just referred to but laboring certainly under the disadvantage of laxity of supervision, the rate is 3.83 weeks. In Society "B," admitting liability for partial incapacity and also meeting with the difficulty of effective supervision, the rate is 4.45 weeks. In Society "C," hampered to some extent by the same difficulty, the rate was 3.08 weeks in the first period, 3.96 weeks in the second period, and in the third (after the supervision had been made more stringent and the benefit reduced), 2.56 weeks.

In Society "D," also providing for partial incapacity, the rate in the first period was 4.92 weeks, and in the second period, after the application of a more exacting supervision (the effects of which, however, had hardly time to develop before the observations closed), 4.67 weeks. In Society "E," with its peculiar enlargement of the original scope of the benefit, the rate was as high as 6.60 weeks.

Taking as a further example the rates corresponding to age 72, the "Standard" (Friendly Societies, 1876-80) gives 9.75 weeks; the

TABLE V.

Sickness Rates in weeks per member per annum found to prevail under differing qualifications for benefit and differing systems of administration.

AGES	Central ages	Society A		Society B		Society C						Society D				Society E		Central ages	Ages
		1892-96		1884-91		1885-89		1890-94		1895-99		1890-94		1895-99		1885-98			
		1st 12 months of sickness	After 12 months of sickness	1st 12 months of sickness	After 12 months of sickness	1st 12 months of sickness	After 12 months of sickness	1st 12 months of sickness	After 12 months of sickness	1st 12 months of sickness	After 12 months of sickness	1st 12 months of sickness	After 12 months of sickness	1st 12 months of sickness	After 12 months of sickness	1st 12 months of sickness	After 12 months of sickness		
20–24.....	22	.91	.03	.79	.02	.73	.15	.76	.07	.65	.09	.83	.00	.56	.04	.84	.00	22	20-24
25–29.....	27	.98	.07	.81	.04	.71	.16	.83	.24	.75	.10	.89	.00	.80	.04	.87	.04	27	25-29
30–34.....	32	1.07	.16	.98	.10	.81	.41	.94	.19	.82	.14	.59	.36	.75	.32	.91	.06	32	30-34
35–39.....	37	1.23	.24	1.13	.27	.91	.72	.95	.48	.99	.25	1.21	.94	.79	.78	.95	.13	37	35-39
40–44.....	42	1.44	.36	1.36	.43	1.00	.87	1.07	.58	.95	.49	1.25	.88	1.34	.62	1.10	.40	42	40-44
45–49.....	47	1.64	.60	1.62	.64	1.27	1.03	1.34	.82	1.06	.63	1.33	.71	1.11	.49	1.40	.86	47	45-49
50–54.....	52	2.04	1.10	2.01	1.09	1.61	.94	1.80	1.55	1.54	.88	2.00	.90	1.52	.93	1.59	1.30	52	50-54
55–59.....	57	2.53	2.10	2.67	2.23	2.06	1.87	2.14	1.86	1.95	1.62	1.72	2.87	2.06	1.85	1.89	1.69	57	55-59
60–64.....	62	3.46	3.83	3.64	4.45	2.73	3.08	2.53	3.96	2.81	2.56	2.32	4.92	2.22	4.67	2.60	6.60	62	60-64
65–69.....	67	4.41	6.35	4.75	10.18	3.74	9.48	3.26	4.35	3.71	6.87	2.56	13.88	2.14	10.16	2.94	14.30	67	65-69
70–74.....	72	6.61	13.37	5.52	16.05	....	....	2.72	7.97	6.54	9.04	2.77	24.28	3.19	21.20	2.57	26.95	72	70-74
75–79.....	77	6.88	22.12	4.89	19.58	....	....	....	15.25	3.75	22.25	2.23	33.88	2.75	29.57	1.20	28.87	77	75-79

Manchester Unity Experience, 1893-97, 12.81 weeks; Society A, 13.37 weeks; Society B, 16.05 weeks; Society C, in the period 1890-94, 7.97 weeks, and in the period, 1895-99 9.04 weeks; Society D, 24.28 weeks and 21.20 weeks, respectively, in the same quinquennial periods, and Society E, 26.95 weeks.

It is clear from these diverse experiences that the qualification for the benefit and the character of the supervision exercised are of the utmost importance in the risk; and it may be added that every addition to the statistics of protracted sickness serves to strengthen the conclusion at which English actuaries have long ago arrived—that an annuity or "pension" benefit is the only really satisfactory form of provision for old age.

The tables hitherto given present the combined experience of the several societies or groups of societies to which they apply without regard to differences arising from variety of occupation or other risks. It has been held that for the purposes of a centralized society with a common fund, whether drawing its membership from a small or large area, such differences may be disregarded provided that the "contributions" (i.e. the premiums) are adequate on the average. Whether this view be sustainable or not, it is evident that in localized societies such as the branches of an affiliated "Order" other conditions obtain. Certain occupations to which extra risks of various kinds are incidental are found to be concentrated, in great measure, in easily definable localities, and experience shows that societies established in such localities obtain a large, frequently a preponderating, proportion of their membership from the classes engaged in such "hazardous" occupations. For this reason the investigation of occupation risks has been found to be vital to the well-being of the societies.

In the most recent investigation of the Manchester Unity Experience (1893-97) the data were divided, with reference to occupations, into the following eight classes:

HJ. The "normal" class, including all persons engaged in occupations considered to be devoid of special features so far as concerned the risk of incapacity.

A. Persons engaged in agriculture.

B. Persons engaged in certain occupations entailing much exposure to weather, but without particular risk, such as building-trade operatives, urban labourers, canal boatmen, and labourers and dock workers. It was considered probable (and the results seem to establish the correctness of the anticipation) that the lack of continuity in many of these employments would exercise a detrimental effect on the claim rates. It is one of the difficulties attendant on the operations of friendly societies that when work is slack, claims are much above the average.

C. Persons engaged in the railway-transport service.

D. " " in seafaring, fishing, etc.

E. " " in quarry work.

F. " " in iron and steel works, foundries, chemical and glass works, and other industries demanding great and continuous physical exertion with exposure to intense heat or other trying atmospheric conditions.

G. Persons engaged in mining.

A critical examination of the sickness rates of these classes led to the amalgamation of those designated A and HJ, of B, C, and D, and

TABLE VI.

Sickness Rates in weeks per member per annum, shown by the Manchester Unity Experience, 1893-97, in classes according to Occupation.

AGES	Classes A, HJ		Classes B, C, D		Classes E, F		Class G		Ages
	First 12 months of sickness	After 12 months of sickness	First 12 months of sickness	After 12 months of sickness	First 12 months of sickness	After 12 months of sickness	First 12 months of sickness	After 12 months of sickness	
22	.77	.04	.90	.05	1.13	.07	1.39	.07	22
27	.78	.09	.92	.08	1.13	.16	1.50	.16	27
32	.83	.14	1.02	.15	1.24	.20	1.61	.22	32
37	.92	.22	1.18	.27	1.41	.28	1.79	.47	37
42	1.09	.35	1.35	.40	1.60	.52	2.04	.67	42
47	1.27	.53	1.61	.69	1.80	.70	2.42	1.04	47
52	1.60	.94	1.94	1.18	2.08	1.16	2.93	1.94	52
57	2.07	1.69	2.55	2.04	2.76	2.18	3.62	2.92	57
62	2.80	3.09	3.40	3.82	3.84	4.46	4.63	6.59	62
67	3.82	6.33	4.16	7.88	4.88	9.42	5.24	12.22	67
72	4.74	12.11	5.09	15.21	5.41	17.26	4.78	22.48	72
77	5.09	19.97	4.85	23.16	4.74	26.48	3.58	26.41	77
82	4.50	27.96	3.87	30.81	4.69	36.33	3.47	35.46	82
87	3.67	32.45	3.60	33.78	4.50	40.42	3.64	36.00	87

of E and F, Class G standing alone as presenting the maximum sickness liability discovered.

Examples of the several rates of claim as finally deduced are shown in Table VI.

The differences here shown scarcely call for comment; the effect of the varying incidents of occupation is apparent.

A minor but interesting point disclosed by this inquiry was that the extra risk of occupations presented itself in the form of an increased number of claimants rather than in an increase in the average length of claim. The following table illustrates this feature.

TABLE VII.

Manchester Unity Experience, 1893-97. Percentage of members claiming sick benefit at each age and average length of claim per member sick; various groups of occupations.

AGES	Occupation Classes A, HJ		Occupation Classes B, C, D		Occupation Classes E, F		Occupation Class G		Ages
	Percentage of members sick	Average length of each claim during the year	Percentage of members sick	Average length of each claim during the year	Percentage of members sick	Average length of each claim during the year	Percentage of members sick	Average length of each claim during the year	
22	22.1	3.66	26.2	3.59	32.9	3.64	38.2	3.83	22
32	21.5	4.49	26.2	4.45	32.3	4.51	39.1	4.67	32
42	23.2	6.21	28.4	6.14	34.8	6.13	41.7	6.47	42
52	27.4	9.28	33.4	9.36	38.2	8.30	47.6	10.21	52
62	37.7	15.57	44.5	16.06	51.8	16.08	59.7	18.42	62
72	59.4	28.25	68.0	29.62	71.6	31.86	78.3	34.12	72
82	85.3	37.70	89.7	38.94	99.3	38.82	96.1	40.30	82

It was also found that the proportionate distribution of sickness claims between the several periods or stages of the attack varied very little with the occupations, and that the proportionate distribution for the "whole society" might be taken as representing, with satisfactory approximation to accuracy, the distribution for every important section. An abstract of this distribution is presented by Table VIII.

TABLE VIII.

Manchester Unity Experience, 1893-97. Proportionate distribution of sickness with reference to period of attack (all districts combined).

AGES	Period of sickness-attack				
	First 3 months of sickness	Second 3 months of sickness	Second 6 months of sickness	Second 12 months of sickness	After 2 years of sickness
	Percentage of total sickness claim falling within the period				
22	79	10	6	3	2
32	69	10	7	6	8
42	56	11	9	7	17
52	41	11	9	10	29
62	25	10	11	14	40
72	11	7	9	14	59
82	4	3	5	10	78
92	2	2	4	9	83

Before an actuarial audience it is unnecessary to enlarge upon the great importance of a correct estimation of the death rates likely to prevail in the future working of a friendly society, so large a portion of the risks of which arises from the benefits payable in old age, whether in the shape of sickness allowances or of annuities. Considerable attention was devoted to this subject in the latest Manchester Unity investigation, and the circumstance that the membership of the society was distributed throughout the country, every part of which yielded a substantial contribution to the data, rendered it possible to investigate the subject from every desirable point of view. The data were principally examined with reference to occupation and locality. The result of the inquiry with reference to occupations was to show a small increase in the rates of mortality coincident with the increase in the rates of sickness; the differences not being such, however, as to suggest the desirability of basing monetary tables upon the data so divided. The distribution by locality yielded more definite results, the data being divided into three sections representing, roughly, non-manufacturing (area 1), textile manufacturing (area 2), and manufacturing (textile districts excluded) and mining (area 3), respectively. An abstract of the "Life Tables" obtained from these three sets of data is given in Table IX.

TABLE IX.

Manchester Unity Experience, 1893-97. Life Tables deduced from data divided by Geographical Situation, and from the whole of the data combined.

AGES	Area 1 l_x	Area 2 l_x	Area 3 l_x	Whole society l_x	Ages
16	1,000	1,000	1,000	1,000	16
25	975	971	969	972	25
35	928	922	920	924	35
45	861	834	847	851	45
55	756	697	729	735	55
65	579	471	532	540	65
75	315	196	256	266	75
85	74	27	47	50	85
95	6	0	1	2	95

It will be gathered from this table that the rates of mortality prevailing in Area 1 are considerably lower than the average of the whole society, and those of Area 2 much above such average. The death rates of Area 3 run close to the average throughout.

The effect of these variations in mortality experience on annuities and life assurances, and in conjunction with the differences of sickness risk arising from the incidents of occupation, will be seen from Table X., in which certain of the more important monetary functions, with interest at 3 per cent., are set out.

TABLE X.

Manchester Unity Experience, 1893-97; Monetary Values, Interest 3 per cent.

FUNCTION	Mortality	Occupations	Age 20	Age 40	Age 60	Age 80
Annuity $\bar{a}_x$	Area 1.....	All	23.76	18.38	11.09	4.55
	" 2.....	"	22.81	16.77	9.39	3.59
	" 3.....	"	23.28	17.68	10.31	3.96
	Whole society	"	23.39	17.78	10.41	4.10
Life assurance .... $\bar{A}_x$ ...	Area 1.....	All	.298	.457	.672	.865
	" 2.....	"	.326	.504	.722	.894
	" 3.....	"	.312	.477	.695	.883
	Whole society	"	.309	.474	.692	.879
Sickness benefit first 12 months of illness..... K_x / $\bar{D}_x$	Area 1.....	Group A, HJ	30.33	36.75	41.21	19.71
	" 1.....	" B C D	35.96	43.03	44.95	17.62
	" 1.....	" E F...	41.71	47.96	50.05	21.17
	" 2.....	" A, HJ	27.37	31.31	33.81	15.92
	" 2.....	" B C D	32.75	37.19	37.45	14.07
	" 2.....	" E F...	38.17	41.53	41.81	16.78
	" 3.....	" A, HJ	28.89	34.29	37.77	17.43
	" 3.....	" B C D	34.41	40.42	41.49	15.45
	" 3.....	" E F...	39.99	45.08	46.25	18.48
	Whole society	.....	31.42	36.75	39.34	17.67
Sickness benefit after 12 months of illness ..... K_x / D_x	Area 1.....	Group A, HJ	27.07	50.83	96.13	131.30
	" 1.....	" B C D	32.35	61.08	115.08	143.24
	" 1.....	" E F...	37.36	69.75	133.51	168.00
	" 2.....	" A, HJ	19.39	36.01	69.56	101.35
	" 2.....	" B C D	23.35	43.70	84.28	110.90
	" 2.....	" E F...	26.96	49.68	97.89	130.59
	" 3.....	" A, HJ	23.17	43.48	82.84	112.49
	" 3.....	" B C D	27.82	52.51	99.78	122.92
	" 3.....	" E F...	32.12	59.85	115.84	144.70
	Whole society	.....	25.31	47.29	89.33	119.43

In order to facilitate comparison with values deduced from former experiences, Table XI. has been added.

TABLE XI.

Manchester Unity Experience, 1866-70, and Registered Friendly Societies' Experience, 1876-80; Monetary Values, Interest 3 per cent.

FUNCTION	Age 20	Age 40	Age 60	Age 80
Annuity $\bar{a}_x$				
Manchester Unity, 1866-70.....	22.32	17.35	10.57	4.44
Registered Friendly Societies, 1876-80.	22.40	17.16	10.13	4.33
Life Assurance $\bar{A}_x$				
Manchester Unity 1866-70.....	.340	.487	.687	.868
Registered Friendly Societies, 1876-80.	.338	.492	.700	.872
Sickness benefit first 12 months of illness				
Manchester Unity 1866-70.....	28.98	37.55	46.93	31.04
Registered Friendly Societies, 1876-80.	28.94	35.25	39.96	19.10
Sickness benefit after 12 months of illness				
Manchester Unity, 1866-70.....	13.10	25.95	51.47	87.69
Registered Friendly Societies, 1876-80.	18.22	34.54	68.80	128.65

RÉSUMÉ.

ASSURANCE CONTRE LES MALADIES PAR LES SOCIETES DE SECOURS MUTUELS DE LA GRANDE BRETAGNE.

Par A. W. Watson.

L'auteur commence par expliquer l'impossibilité où il se trouve de se conformer aux termes spécifiques de la résolution du dernier Congrès qui demandait des « tables de mortalité parmi les malades.» Il n'existe pas dans la Grande Bretagne de données que l'on puisse obtenir sous cette forme.

Ceci posé, l'auteur supplémente les tables figurant à l'article présenté par M. Neison au dernier Congrès en y ajoutant la seule expérience publiée depuis lors, ayant nom la « Manchester Unity Experience 1893–97 » et renfermant des données qui s'étendent sur plus de 3 millions d'années de vie. Il attire spécialement l'attention sur la valeur de cette enquête à propos du sujet particulier soumis à l'examen, en raison de son adaptabilité aux conditions modernes et du grand nombre de faits qu'elle présente sur la période sénile de la vie. Cette Expérience montre que les taux de maladie ont beaucoup augmenté surtout en ce qui concerne les cas de longue durée, mais que les taux de mortalité ont généralement diminué.

M. Watson suggère qu'on peut trouver une raison probable de la grande augmentation des cas de maladie permanente dans le relâchement de surveillance qu'amène l'accumulation de la fortune des Sociétés (qui perdent peut-être de vue la coïncidence de l'augmentation de leur risques).

L'auteur fait ensuite ressortir les taux de maladie adoptés par certaines grandes organisations, dont quelques-unes font surveiller localement leurs membres malades, tandis que d'autres se contentent d'exercer de leurs bureaux un contrôle imparfait sur les demandes d'indemnité. Dans certains cas également le risque encouru ne l'est qu'en cas d'"incapacité totale" tandis que dans d'autres cas il prévoit une "incapacité partielle" qui diminue le gain de l'assuré. Il donne l'expérience de chaque type de société à chaque cinquième âge; la maladie « des douze premiers mois » et le reste de la maladie « après douze mois » sont présentés séparément pour typifier respectivement l'incapacité temporaire et permanente. Il est très facile au moyen de cette table de tracer clairement les différences dans le taux des demandes de paiement qui résultent de la différence dans la qualification pour bénéfices et de l'efficacité dans la surveillance. L'auteur donne ensuite un exemple des différents risques des professions d'après des données qu'il a puisées dans la « Manchester Unity Experience 1893–97.» Dans cette expérience on avait divisé les professions en huit groupes qu'on a subséquemment ramené à quatre par amalgamations, et on donne les taux de maladie à chaque cinquième âge. Dans ce cas-ci on présente les taux pour maladies temporaire et permanente respectivement.

Une autre table fait ressortir le fait que les prix plus élevés exigés pour certaines groupes de professions sont attribuables à l'augmentation du nombre des malades au-dessus de l'expérience normale, plutôt qu'à une augmentation de la durée moyenne de chaque maladie.

M. Watson fait ensuite quelques remarques sur les taux de décès que découvre la « Manchester Unity Experience 1893–97 » et conclut par des tables montrant certaines valeurs monétaires qui expriment l'effet financier des variations de profession et de localité, tout à la fois séparément et en conjonction.

KURZE NOTIZ.

VERSICHERUNG GEGEN KRANKHEITSFÄLLE DURCH WECHSELSEITIGE UNTERSTÜTZUNGS-VEREINE IN GROSS-BRITANNIEN.

Von A. W. Watson.

Der Verfasser erklärt vorerst die Unmöglichkeit, sich den besonderen Bedingungen des im letzten Congresse gefassten Beschlusses, wonach „Sterblichkeits-Tabellen von invaliden Personen“ verlangt werden, fügen zu können. Aufzeichnungen in solcher Form sind in Gross-Britannien nicht erhältlich.

Der Verfasser fährt fort, die im letzten Congresse durch Herrn Neison's Artikel vorgelegten Tabellen zu ergänzen, indem er das eine Experiment, das seit jenem Datum veröffentlicht wurde, nämlich die „Manchester Unity Experience, 1893/97," eine Sammlung von Daten, die über 3 Millionen Lebensjahre einschliesst, hinzufügt. Mit Nachdruck wird auf den Werth dieser Untersuchung und zwar einerseits unter Hinblick auf den besonderen Gegenstand der Prüfung wegen seiner Anwendbarkeit unter modernen Verhältnissen, andererseits auf die bedeutende, bezüglich des Greisenalters darin angeführte Anzahl von Thatsachen hingewiesen. Aus diesem Experiment geht hervor, dass die Krankheitsfälle sich verhältnissmässig um Bedeutendes vermehrt — ganz besonders diejenigen von langer Dauer —, die Todesfälle hingegen im Allgemeinen sich vermindert haben.

Die zufolge anwachsenden Kapitals der Vereine verminderte Ueberwachung (die damit verbundene Anhäufung von Verpflichtungen wird möglicher Weise übersehen) wird als wahrscheinlicher Grund für die grosse Vermehrung der anhaltenden Krankheitsfälle betrachtet.

Der Verfasser geht noch weiter, indem er die grosse Zahl von Krankheitsfällen, welche in gewissen ausgebreiteten Organisationen vorherrscht, anführt, von denen einige auf örtliche Ueberwachung der kranken Mitglieder eingerichtet, während andere die Ansprüche nur unvollkommen vom Hauptquartier aus zu controllieren in der Lage sind.

Ausserdem ist in manchen Fällen eine Verbindlichkeit für „Total-Unfähigkeit" vorgesehen, in anderen für „theilweise Unfähigkeit" oder „verringerte Erwerbsfähigkeit." Die Erfahrung jeder einzelnen Art von Verein ist nach Ablauf von je 5 Jahren angegeben, wobei die Krankheit der „ersten 12 Monate" und der Rückstand der Krankheit „nach 12 Monaten" als temporäre, respective anhaltende Unfähigkeit bezeichnet und separat angeführt wird. Die Differenz in den beanspruchten Beträgen, welche sich aus dem Unterschied in der Qualification für Vortheile und aus der Vollkommenheit der Ueberwachung ergiebt, ist aus dieser Tabelle klar ersichtlich. Zunächst folgt ein Beispiel der unterschiedlichen Gefahren der Beschäftigung, zu welchem das Material aus der „Manchester Unity Experience 1893/97" genommen wurde. Bei diesem Versuche wurden die Beschäftigungen in 8 Gruppen eingetheilt, welche hernach durch Verschmelzung sich auf 4 Gruppen herabminderten und die Krankheitsfälle in jedem fünften Alter angeführt. Hierbei ist gleichfalls die Anzahl von temporären, respective permanenten Krankheiten gegeben.

Eine andere Tabelle enthüllt die Thatsache, dass die Extra-Kosten in gewissen Beschäftigungsgruppen eher einer Erhöhung der Anzahl von Anspruch erhebenden Personen über den Normal-Standpunkt, als einer Verlängerung der durchschnittlichen Dauer jedes einzelnen Anspruches zuzuschreiben ist.

Hiernach folgen einige von der „Manchester Unity Experience 1893/97" entnommene Bemerkungen über Sterblichkeitsraten, und schliesst der Bericht mit der Aufstellung von Tabellen, welche Geldwerthe anzeigen, die die finanzielle Einwirkung der Beschäftigungs- und Orts-Veränderungen ausdrücken; beide sind einzeln und auch in Verbindung mit einander angeführt.

HEALTH INSURANCE IN THE UNITED STATES.

BY

H. J. Messenger, Ph. D.,

Actuary of the Travelers' Ins. Co., Hartford.

I cannot give a better idea of the beginning of health insurance in the United States than by quoting from Fowler's "History of Insurance," pages 832-836, as follows:

"While in the active organization of city companies in the first decade of the nineteenth century there was more or less of a purpose shown to unite upon diversity of hazard, by 1820, companies writing marine risks were limited generally to such writing, and in the subsequent two decades 'other assurances' than marine, fire, and life were neither practiced nor thought of in Philadelphia. Health insurance, however, another adoption of English practice, became—as to term, not whole-life risks—an American experiment in the fifth decade of the century. Various schemes of the kind having been projected in Great Britain, some data had been collected, computations made thereon, and lists of rates produced—single and annual premiums. Sickness tables represented the sickness periods in England as varied, not only by age, but by the circumstance of rural, town, or city residence, invalidity having its highest quantum in the city, and the lowest in the country. In such representation (the average sickness period advancing with advancing age, or fluctuating), there was an illness, for example, for age twenty of .8387 of a week in the country, against 35.2065 weeks for age eighty in the city. The mean of the combined local divisions was for quinquennial ages as follows:

Age	Weeks' sickness	Age	Weeks' sickness
20	.8398	55	2.7049
25	.8744	60	4.1657
30	.9107	65	7.7501
35	.9836	70	14.0391
40	1.1808	75	21.4662
45	1.4939	80	26.9405
50	1.9603		

This was to say that among 100 persons, age thirty-five, there would be approximately 98 weeks' sickness at such year of age, and a sick benefit of $4 per week would have a prime cost per annum to each associate of $3.92.

In Massachusetts the American experiment had its best test. The first provision for insurance against loss from incapacity attending ill health was the Massachusetts Health Insurance Company of Boston, an institution of character, with its operations based upon recognized elements of possibly correct procedure. It was followed by others chiefly of a speculative nature, the ignorance at the foundation of such speculations producing its normal result—first, self-deception, then the deception of others. Health insurance, if not the initiative, became the forerunner of an era of various insurance frauds. The Massachusetts Health

Insurance Company, within the age limits to which it confined itself, issued term contracts for one, two, three, or five years, with annual rates according to the age of the entrant upon the insurance, and the term written; rates uniform to the insured throughout the term. These are exemplified by the following citation of annual rates according to term and entrance age, for the weekly benefit of $4 during incapacity from sickness:

Age	One year	Two years	Three years	Five years
20	$4.50	$4.95	$ 5.17	$ 5.62
30	5.00	5.50	5.75	6.25
40	6.50	7.15	7.47	8.12
50	9.00	9.90	10.35	11.25

This organization does not appear to have taken the responsibility for the years beyond the middle period of extreme life.

During the last six months of 1847 this Boston office received 1,400 new members; in Philadelphia, at the beginning of 1848, a somewhat similar project was conceived, and March 2, 1848, an act was approved incorporating the Health Insurance Company of Philadelphia—capital, $100,000; shares, $25 each, $5 to be paid in on subscription.

Sections IX. and X. of the act of incorporation were as follows:

Section IX.—After providing for all risks, losses, incidental expenses, and dividends, as specified in the preceding section, then one moiety or half part of the remaining profits or surplus, if any there be, shall be reserved by the directors, and applied by them toward the payment of the capital stock, which shall have been subscribed before the striking of the balance of the affairs of the corporation, as aforesaid, and the other moiety or half part of the said remaining profits and surplus may be divided among the stockholders and the persons insured, according to their respective interests; one-half thereof among the stockholders, and the other half among the insured; but no dividends whatever shall be made whereby the capital stock of said corporation, subscribed for and paid in, shall be reduced or impaired.

Section X.—The directors shall have the power to require every person subscribing to the stock of said company, to effect insurance therein, either upon his own health or upon the health of some other person, for such length of time as they may prescribe; but every person, effecting insurance in said company, shall have the privilege of subscribing for at least one share of said stock, paying at the same time the required installment, until the whole number of shares authorized by this act shall be taken up, and any person subscribing for the stock of said company, and paying the installment at the time of subscribing as aforesaid, may be allowed by the directors, and with their permission, obtain, in addition to the stock so subscribed by him, a policy of insurance upon his health, or upon the health of some other person, being in all other respects qualified according to the terms of the by-laws of said company, and such person so subscribing may receive a credit for the amount of the premium of such insurance, out of the said installment paid on one share of stock, until two hundred shares of the capital stock are subscribed for, but not after.

The rates of the Health Insurance Company were in age groups instead of being for distinctive ages. They indicated an estimate of sickness greater under age thirty-five than the Boston office, and less for ages above thirty-five, viz.:

ANNUAL RATES TO INSURE THE BENEFIT OF $3.00, $5.00, OR $10.00 PER WEEK FOR ONE, TWO, THREE, OR FIVE YEARS.

$3.00 Weekly

	1 year	2 years	3 years	5 years
18 to 35	$4.00	$4.45	$4.70	$5.20
35 to 45	4.25	4.85	5.15	5.80
45 to 55	5.50	5.30	5.70	6.50
55 to 65	5.85	5.75	6.20	7.10

$5.00 Weekly

	1 year	2 years	3 years	5 years
18 to 35	$6.55	$7.10	$7.40	$8.00
35 to 45	6.85	7.60	7.95	8.70
45 to 55	7.25	8.15	8.60	9.50
55 to 65	7.70	8.70	9.20	10.20

$10.00 Weekly

	1 year	2 years	3 years	5 years
18 to 35	$12.90	$13.75	$14.20	$15.05
35 to 45	13.45	14.45	14.95	15.95
45 to 55	14.10	15.25	15.80	16.95
55 to 65	14.80	16.05	16.65	17.90

Rates for groups of ages had justification in the indefinite character of the risks. Insurance against deprivation caused by sickness for a term of years beginning at a certain age, in taking cost as an increasing annual quantity, was an intelligent method in comparison with the lumping of term rates in fire insurance, by which a uniform annual quantity was treated as a decreasing quantity; but an exact counting of an inexact quantity was like computing the value of a number of barrels of flour when the number might be seven or ten or twelve. It was true that in life insurance also the age death rate was not an exact quantity, but it was a practically close approximation thereunto, and it was governed by the controlling fact that a life aged thirty would end by the final table year as a certainty affected by an infinitesimal fraction of a doubt. No insurance could have the elements of approximate certainty which life insurance possesses. Health insurance was a useful scheme beset with obstacles to its practice. Its subject was largely acceptable to popular sentiment, but in this sentiment provision for sickness was more of a benevolence than an insurance.

By the beginning of 1849 the Health Insurance Company had issued 1,126 policies and had paid for "sick allowances" under its policies from April to January, $165 to machinists, $235 to other mechanics, $165 to merchants, $97 to manufacturers, $75 to clerks, $58 to physicians; to other male persons and pursuits, $111; to females, $55.

April 7, 1849, another health insurance charter was approved, having the title Spring Garden Health Insurance Company of Philadelphia County.

Health insurance was, however, disclosing the characteristics of a doubtful experiment; the original undertakers thereof throughout the country were withdrawing, and as the project passed from weakness to demoralization and fraud, capricious rules were adopted, promising per week, for benefits while incapacitated from sickness, irrespective of age distinction, a sum equal to two-thirds or three-fourths, etc., of the yearly premium. In Philadelphia the project was yet continued in the expectancy that it was practicable in association with life insurance.

The health department of the American Life, beginning in 1850, was constituted with the largest caution. Payment for the first week's sickness was eliminated. Whenever the aggregate funds of the department should be reduced to less than $2 per member, a reduction in benefits was to follow. Persons receiving sick allowances for twelve months, were to receive but 75 per cent. of such allowance in the second year, fifty per cent. in the third year, 25 per cent. in the fourth year.

Respecting health insurance, Harvey G. Tuckett said, in the prospectus of his journal, starting January, 1852: "In no department of the science of insurance have greater mistakes occurred than in that of health. Parties entered upon the speculation, one taking another's printed rates as a guide, deducting ten, fifteen, or twenty per cent., as fancy dictated or the greater number of policies could be obtained. . . . The mischief which has been done is not irretrievable, if the proper calculations are placed before the public." But the scheme was not in a position to resort to "proper calculations."

Health risks were now discontinued in the two Philadelphia offices that had written them during brief periods.

In the Merchant's Magazine, New York, 1848, volume xix., page 601, is an article on the Law of Sickness and its Application to Health Insurance and Benefit Societies. After some general remarks in regard to the benefits which would follow the establishment of companies to do health insurance, and the possibility of obtaining a basis for rates from the investigations in connection with the British friendly societies, the article refers to a recently established health insurance company in this country and then goes on as follows:

"The rates of premium charged by the Eagle Life and Health Insurance Company are formed strictly with reference to the risk as developed by these investigations, and, being the fullest and most correct of any published, we subjoin them.

Weekly Benefit $4.00

Age	5 years	7 years	To 70
20	$ 5.25	$ 5.30	$ 8.00
35	6.70	6.85	11.00
50	10.50	11.25	19.25

"It is to be lamented that we have no data wherewith to ascertain the rate of sickness and mortality in this country, but there is consolation in the fact that if the government will do nothing, in a few years the experience of friendly and benefit societies and health insurance companies will supply the deficiency. The Eagle Company already numbers the persons insured with them by thousands, and as soon as practicable the rates will be deduced from their experience and published."

In regard to the Eagle Life Insurance Company, referred to above, we find, according to the New York Insurance Reports, Barnes's edition, condensed form, volume i., page 532, that this Company had its home office in Jersey City, and, on April 28, 1849, had a capital stock of $100,000, and total assets of $133,777.08, leaving a surplus of $33,777.08, with no liability charge except the capital stock. On January 25, 1850, according to the same reports, the assets were $107,549.56, with no liability charge except the capital stock. According to the sworn statement of Richard Bull, secretary, dated February 5, 1850, the company had no absolute liabilities. In regard to contingent liabilities all of these reports maintained an eloquent silence.

In the Boston Medical and Surgical Journal for 1847, page 23, we find an article referring to health insurance as a new business, and speaking in a general way of its desirability and importance, and commenting favorably upon the possibility of its success. It then adds the following:

"There is an office in Tremont Street where, by the payment of from $4.75 to $9.50, a man from twenty-five to fifty-two years of age, may draw weekly from $4.00 to $6.00 when an invalid. Besides the great benefit to the insured, there would be no complaint by the physician of poor practice by loss of bills where the custom was a general one, as it should be, of being fully insured. A scheme so admirable as this, and withal so strictly economical, addresses itself at once to the understanding, and we hope, therefore, that the benefits of that excellent institution, the Massachusetts Health Insurance Company, may be appreciated by the intelligent people of New England."

On page 143 of the same volume, issue of September 15, 1847, is the following:

"*Essex County Health Insurance Company.*—A correspondent calls our attention to this institution, recently organized and now in active operation. The observations in the Journal recently in regard to the Massachusetts Health Office may be applied to this with equal force as far as we understand its objects and intentions. Seven hundred and fifty policies had been issued up to the first of last week, and yet the office was not created till April last, which shows that the public repose confidence in the managers."

In the same publication, for September 20, 1848, page 168, is a reference to the Massachusetts Health Insurance Company, and a statement in regard to its being obliged to take various steps to protect itself against sham sickness. The article then says—"During the past ten or twelve months they have paid out more than $8,000 to sick members. In the month of August last, alone, they paid out about $1,600 to one hundred and twenty policy-holders."

In the issue of November 15, 1848, is the following note:

"*The Massachusetts Health Insurance Company, Tremont Street.*—During the last three months this institution has paid out about $5,000 to sick members. The institution is conducted by some of our most respectable citizens."

The following, in regard to the beginnings of health insurance in the United States, is from an article by Walter S. Nichols, in the Insurance Blue Book, 1887, Centennial Issue, page 63:

"*Health and Casualty Insurance.*—Insurance other than fire, life, or marine, was practically unknown in the United States down to about 1847.

"Between 1845 and 1850 the subject of health insurance first began to attract attention. The special benefit intended to be conferred by this class of institutions, namely, the payment of a certain weekly or monthly sum in case of sickness, had for many years been partially accomplished by various secret and benevolent societies in this country and abroad. But these organizations had generally shown a lack of scientific principles in their management. Their system of dues was adopted with little regard to the age of the members, a matter which is of as vital importance in a health as in a life company, and in the earlier years with as little information concerning the laws of sickness. The failure of many of them was, of course, the result, while others were obliged to violate their

promises and disappoint their members. The increase of these organizations in England in the early part of this century led the government to investigate their condition in 1828. The investigation disclosed the fact that in their anxiety to make their benefits as large and their dues as light as possible, in addition to the past failures, a large proportion of those existing were on the brink of bankruptcy. The necessity of larger receipts in the earlier years, to meet the increase of expenses as the members advanced in life, had formed no part of their calculations; their rates had been governed by competition and caprice. Such was too often the story of the same class of societies in the United States, of which very few outlived the period required to produce this result. An empty treasury was followed by their dissolution. The parliamentary investigations in England secured tolerably reliable data concerning sickness, and a large fund of information concerning its laws, statistics for this purpose being gathered from all parts of the United Kingdom. Laws were afterwards passed requiring quinquennial returns from these associations, and these returns were analyzed and arranged by the eminent English actuary, Mr. Neison. The data thus secured furnished the basis on which the rates for health insurance were computed by the American companies, as no similar statistics had been gathered here."

The Eagle Life and Health, of Jersey City, started in 1847, was among the most prominent of this class of companies, and was the first to recommend and adopt a system of rates based on an intelligent and scientific investigation of facts. The following extract from an article by the president of that company, in 1848, will explain the views then held on this subject:

"Within the last three years several companies have been formed in this country for the purpose of effecting insurance against the pecuniary loss and inconvenience occasioned by sickness. Although the idea appeared novel, yet the same thing was practiced by the various secret and other benevolent societies which have abounded for years past. Their system of dues and benefits is only another name for effecting insurance by paying premiums. The object sought to be accomplished is one very praiseworthy and benevolent, and of great service to a large and valuable part of the community. But as all did not wish to become members of secret societies, which, until health insurance companies were formed, was the only mode of compassing security of this kind, such institutions were deemed necessary. There is no kind of insurance which may be made more generally useful than this, for it contemplates a provision for the want of an individual or family at the very time when such provision is most needed; and whatever sums are paid to the insured, the value is greatly enhanced by the consideration that it is not the result of benevolence or charity, but proceeds from his own wise and prudent forethought."

The English statistics spoken of furnished the basis from which, after such comparisons as could be made with the scanty array of information possessed concerning this country, the company compiled its tables. These tables, so far as could be judged, were accurate. But their application revealed an unexpected difficulty which overturned the whole scheme of health insurance, and compelled the companies to abandon it. This difficulty was neither more nor less than an extensive system of frauds practiced by derelict doctors. It is, in most cases, a very simple matter to determine whether a life policy is to be paid or not. Death cannot easily be counterfeited. But sickness could readily be feigned.

A doctor's certificate was required by the companies that the party was actually laid aside by illness. This was easily obtained by the insured from some petty M.D. for the most trivial causes, or none at all. Armed with his certificate, a pension was demanded by the sufferer, while the company had no means of detecting the fraud. So great was the dishonesty practiced in this way that the business of the Eagle was relinquished in 1853, and the life risks reinsured in the Knickerbocker, notwithstanding the applicants were generally numerous, and the company numbered its insured by thousands.

ANNUAL PREMIUMS OF THE EAGLE LIFE AND HEALTH, 1848, FOR AN INSURANCE OF $4.00 PER WEEK DURING SICKNESS.

Age	5 years	7 years	Up to 70
20	$ 5.25	$ 5.30	$ 8.00
25	5.50	5.60	8.25
30	6.00	6.10	9.50
35	6.70	6.85	11.00
40	7.75	8.00	13.00
45	9.00	9.25	15.50
50	10.50	11.25	19.25

This table will illustrate to those benevolent societies that charge a uniform rate, the fallacy of their practice, and the true laws which should govern all systems of dues.

About the time when the Eagle began, unchartered health associations were numerous throughout the country; they had all been started within a few years, and were based on the crudest ideas concerning their proper management. At first some discrimination appears to have been exercised in regard to the different ages, but competition soon abolished this, and the general theory was accepted that any yearly rate would allow the same sum to be paid weekly. We need only add that these companies never had a history. Numerous chartered institutions came upon the stage in the two years following the Eagle, in some cases uniting the health and life business. Four companies were chartered in Massachusetts in 1849, and were all closed after a brief experience. The Philadelphia Fire Insurance Company was chartered in 1848, with life and health privileges, but was unsuccessful in both departments, and confined itself afterwards to writing fire risks; and so of others. The experience of these institutions was, however, of value to the numerous secret societies existing in the United States, and resulted in a more thorough investigation of the principles on which they should be conducted, and a corresponding improvement in their practice.

Dr. Jarvis, in a communication to the Massachusetts Medical Society, in 1849, observes: "There are no data to determine the amount of sickness in New England. Some of the health insurance companies made up their rates of premiums according to those of the English benefit societies, but these have been found, on trial, too low. Probably there is more sickness here than in England, and some of these companies have been paying out in benefits more than they received in premiums."

The commissioners appointed to make a sanitary survey of Massachusetts, stated in their report, published at this time: "Some of the health insurance companies of this State have closed their business because they have had to pay out more than they received. Some lodges of Odd Fellows have also been obliged to curtail their payments. All these institutions are now groping in the dark in regard to these matters, and many of them, it is believed, cannot exist under the rates of

payment proposed to be made. A misapprehension of the principles on which they should have been founded and managed is a principal cause of their failure. Some have supposed that the proportion of sickness to health in Massachusetts is greater than in England, but others are of different opinion."

RECORDS OF MASSACHUSETTS HEALTH INSURANCE COMPANY, 1849.

Age	Number insured	Number sick	Weeks of sickness	Per cent. of sick one out of	Weeks of sickness to each one sick
16-30	533	122	539	4.36	4.40
30-35	130	39	161	3.30	4.12
35-40	59	19	108	3.10	5.68
40-45	26	3	25	8.66	8.33
45-50	13	5	17	2.60	3.04
16-50	761	188	850	4.92	4.05

From this table it appears that 26.70 per cent. of the members were sick, and the average length of time was thirty-one days. This table refers simply to those policies which had expired and without any definite knowledge of their duration.

Throughout the fifty years following the first attempts to establish health insurance in this country various companies and assessment and fraternal organizations were started for the purpose of carrying on business of this kind. Not a single one was successful. Only a few were in competent hands, and in the majority of cases the management was characterized not only by incompetence but by dishonesty. From 1855 to 1895 the various insurance papers contained from time to time references to health insurance companies and the references, with two or three exceptions, are all alike. They simply chronicle the incompetence, dishonesty, failure, and death of the different organizations.

Two attempts, however, were of a character differing from the great majority and deserve a passing reference. One was the Hildise Bund and the other the early history of the Prudential Insurance Company.

In regard to the Hildise Bund, the following quotation is from the Insurance Monitor for January, 1879:

"The Hildise Bund, the largest German insurance and relief society in the country (having nearly seven thousand members), owing to the heavy calls made upon its funds, has been for some time laboring under embarrassment. A meeting called by Section No. 19 of this city, was held a few days since, and a committee was appointed to confer with the president of the insurance company through which its insurances have been effected, and the president of the board of the Hildise Bund, and report the best plan for reorganization. One of the members stated that during the nine years existence of the society, over $800,000 had been paid out, and some members had drawn over $3,000 each during the past two years—in some cases, he felt sure, without proper investigation. The Pittsburg members of the Bund also held a meeting lately. A circular issued by the Bundesrath, notifying the members of the society that the entire management of the society had been transferred to Joseph F. Knapp, President of the Metropolitan Life Insurance Company, and that the entire Bundesrath, with all its officers, had resigned, was read. It was stated that by the resignation of the Bundesrath with its offices, the sum of over $14,000 in salaries was saved to the society annually,

while its business can be attended to better and with greater dispatch than under the old management. The Hildise Bund now stands indebted over $20,000 to the Metropolitan Life Insurance Company, and that company has notified the Bund that they will continue loaning money until March next for their sick relief fund, but will not loan them any more to pay salaries with. It is thought that under careful management the $14,000 saved in salaries next year could be applied to the reduction of their debt, and in a short time the Bund will be entirely out of debt."

Members of the Hildise Bund were originally, to a large extent, a good class of Germans. The character of the membership was better in the earlier years than in the later. The experience represents about ten thousand lives. The policy contract, reduced to nearly the same basis as the general health policy first issued by the Travelers' Insurance Company (copy of the Travelers' policy is given later on) carried at age twenty a premium of $7.37, as compared with the Travelers' premium of $8.00; at age thirty-five a premium of $9.10, as compared with $9.20; at age fifty a premium of $15.17, as compared with $15.40.

The contract did not cover just the same as that of the Travelers', but taken altogether, it probably amounted to about the same. It included accident cases, and there were twenty-six weeks' full indemnity, twenty-six weeks' half rate indemnity, and one hundred and four weeks' quarter rate indemnity. The members of this organization, having once entered, were generally permitted to remain as long as they paid their dues. The organization paid the expense of the medical examination. There was proper inspection in regard to sickness cases and very little chance for imposition as compared with what a stock company might expect. The result of their experience has not been carefully and completely worked out; but the general results, according to information furnished me by Mr. Cahen, who, for many years, has been treasurer of the organization, were that a general loss of about 25 per cent. was suffered after the organization reached an age where it was possible to get an idea of the experience and the general tendency of the experience was to grow worse and worse. This concern was honestly and economically managed; its bad fortune was not the result of bad management, but was due to the fact that the rates were insufficient.

The Prudential Insurance Company of America, or rather the Prudential Friendly Society, from which the Prudential Insurance Company developed, was originally engaged in health insurance, but soon abandoned the sickness branch, which it is clear must needs have been unfavorable, and in 1877 the company was reorganized, the charter changed, and the present Prudential Insurance Company of America established.

In regard to the Prudential's attempt to do health insurance, Mr. Frederick L. Hoffman, Statistician for the Prudential, makes the following statement in his History of the Prudential Insurance Company of America:

"Without entering extensively into the question as to why the American Prudential finally followed in the steps of the English companies in abandoning its sickness branch, it may briefly be stated that partly on account of the small demand for such insurance in this country, partly on account of the inherent difficulty of transacting this form of insurance on a profitable basis, the Society, after having given this branch of the business a fair trial, finding it impossible to transact the same

profitably or safely, followed other companies in limiting its business to whole-life policies on the level-premium plan.

It may not be out of place to add the words of Mr. (now Sir) Henry Harben in explaining to the Royal Commission on Friendly Societies the reasons as to why his company has discontinued transacting a sick insurance business. Mr. Harben stated that, as a matter of fact, his company found that 'it did not pay,' and, further, that 'We found that we were totally unable to cope with the fraud which was practiced,' and hence Mr. Harben's conclusion that 'We have tried it, and I think our agents are the most honest, and we can not manage it.'"

The period from 1847-97, inclusive, can be regarded as the first period of health insurance in the United States. It was a period characterized throughout by failures. Those engaged in the work were not trained insurance men, and had no conception of the necessity of a contingent liability reserve. None of the companies had the requisite financial backing, and the only experience they had to go by was the experience of the English friendly societies, showing, with a fair degree of accuracy, the number of weeks of genuine actual sickness in England at the different ages. How great would be the expense of conducting these health companies and how much they would have to pay for claims that did not represent genuine sickness, they had to learn from experience. The result was that, although a few of the men connected with the earlier companies were persons of ability in a general way, and were reliable and earnest, yet they soon withdrew, and their places were generally taken by incompetent and irresponsible parties, and what little scientific basis had been brought into play by two or three of the earliest companies was soon thrown to the winds.

The second period in health insurance in this country concerns very recent years only, extending from 1898 to the present time. Time enough has not yet elapsed during this second period to determine very definitely just what form health insurance will eventually take. But from the character of the men and the companies which have taken hold of the matter, from the way in which the problem has been handled and from the steady growth of the business during the last six years, it cannot be regarded as a rash statement to make, that health insurance has come to stay, and, while the problem has not yet been solved, yet considerable material progress has been made.

The most important developments of health insurance during the last six years were probably the result of the competition of the stock accident companies. Competition among the stock accident companies had been very strong for a number of years, and they had been in constant contest to see who could outdo the others, until it seemed that the limit had about been reached, when one of the companies branched out in a different direction and commenced issuing, in connection with its accident policy, what might be called a special health policy, paying weekly indemnity in case of disability as the result of contracting any one of a certain limited number of specific diseases. The Fidelity and Casualty Company of New York is generally credited with being the first stock accident company of this country to issue such a policy, and the following is a copy of the contract in its early form:

Health Policy.

The Fidelity and Casualty Company of New York (hereinafter called the Company) in consideration of the premiums and of the statements in the schedule hereinafter contained, which statement the as-

sured makes on the acceptance of this policy and warrants to be true, does hereby insure the person described in said schedule for the period of one year, from 12 o'clock noon, standard time, of the day this contract is dated, as follows:

I. If the assured shall, during the term of this policy, contract any disease that shall result, independently of all other causes, within one year from the date of this insurance or any renewal hereof, in the irrecoverable loss of the sight of both eyes or in permanent paralysis whereby the assured shall entirely lose the use of both hands or both feet, or of one hand and one foot, and on account of either of said conditions be permanently unable to engage in any work or occupation for wages or profit, the company will, one year from date of filing preliminary proofs at the company's home office, pay to him the sum of two thousand five hundred dollars.

II. Or if the assured shall suffer from typhus, typhoid, or scarlet fever, smallpox, varioloid, diphtheria, measles, Asiatic cholera, erysipelas, appendicitis, diabetes, peritonitis, bronchitis, pleurisy, or pneumonia, and said illness shall, independently of all other causes, continuously and wholly disable and prevent the assured from performing any and every kind of duty pertaining to his occupation, the company will pay him twenty-five dollars per week during the continuance of such disability for not less than one week and not exceeding twenty-six consecutive weeks.

III. This insurance does not cover disability from illness resulting from voluntary or unnecessary exposure to contagion or infection, nor from any illness or illnesses other than those specified in this policy, nor from any disease resulting from injuries, nor from any illness complicated with or resulting from a disease not specifically covered by this policy, nor from any illness occasioned by or resulting from a surgical operation.

IV. This insurance does not cover disability from any disease if contracted within fifteen days from noon of the day this policy is issued.

V. If the assured carries health or sick benefit assurance in either companies or associations, or both, making an aggregate weekly indemnity in excess of the money value of his time, the company shall be liable for only such proportion of this insurance as said money value of his time shall bear to the aggregate of the weekly indemnity of the entire insurance so carried.

VI. This policy shall not take effect unless the premium is paid previous to any illness under which claim is made. The company may cancel this policy at any time by written notice mailed to the address hereinafter given, and the unearned portion of the premium shall be returned to the assured, and the company's check for such amount mailed with such notice shall be sufficient tender.

VII. If the assured shall have become entitled to indemnity for disability on account of accidental injuries, the company shall not for the same period of time be liable for any disability on account of illness.

VIII. This insurance does not cover women nor persons under eighteen or over sixty years of age.

IX. Any medical adviser of the company shall be allowed to examine the person or body of the assured in respect to any alleged disease or illness in such manner and at such times as he may require.

X. Immediate written notice must be given the company at New

York City of any disease or illness for which a claim is to be made, with full particulars thereof and full name and address of the assured. Affirmative proof of duration of disability must also be furnished to the company within two months from the termination of disability. Affirmative preliminary proofs of blindness or paralysis must also be furnished to the company within two months, and affirmative final proof within fourteen months from date of beginning of total blindness or paralysis. Legal proceedings for recovery hereunder may not be brought before the expiry of three months from date of filing final proofs at the company's home office, nor brought at all unless begun within eighteen months from date of beginning of blindness or paralysis, or within six months from the termination of disability. Claims not brought in accordance with the provisions of this clause will be forfeited to the company.

XI. This insurance covers disease or illness suffered only within the limits of the United States, Canada, and Europe.

XII. An agent has no authority to change this policy or to waive any of its provisions, nor shall notice to any agent, or knowledge of his or any other person, be held to effect a waiver or change in this contract or any part of it. No change whatever in this policy and no waiver of its provisions shall be valid unless an indorsement is added hereto signed by an officer of the company expressing such a change or waiver.

In witness whereof, the Fidelity and Casualty Company of New York has caused these presents to be signed by its president and secretary in the city of New York; but the same shall not be binding upon the company unless countersigned by a duly commissioned agent.

Extract from Schedule of Warranties Made by Mr. Frederick Fancher, Hereinbefore Called the Assured.

H. My income per week exceeds the gross amount of weekly indemnity under all policies carried by me.

I. I have no accident or health insurance issued by stock companies, assessment, or fraternal association, except as follows:.....

J. If during the period of this policy I take other accident or health insurance, I hereby agree to report same to this company.

K. No application ever made by me for insurance has been declined, and no accident policy issued to me has been cancelled or renewal refused, except as herein stated.

L. I have never received indemnity for any accident except as herein stated.

M. I have not in contemplation any special journey or hazardous undertaking except as herein stated.

N. I have never had fits or disorders of the brain, except as herein stated.

O. My habits of life are correct and temperate, and I am in sound condition mentally and physically, except as herein stated.

P. I have not been exposed within the last ten days to typhus, typhoid, or scarlet fever, smallpox, varioloid, diphtheria, measles, or Asiatic cholera.

Q. I have not had nor am I now suffering from erysipelas, appendicitis, diabetes, peritonitis, bronchitis, pleurisy, pneumonia, paralysis, locomotor ataxia, nor any disease of the spine, except as herein stated.

R. I have not suffered nor am I now suffering from cataract or any disease of the eye, except as herein stated.

The annual premium for the above contract was $10 for $25 weekly indemnity in case of sickness.

The new departure of the Fidelity and Casualty Company in the line of health insurance was soon followed by several of the stock accident companies. The Travelers' and the Aetna in March, 1899, placed upon the market two health contracts; one, a special health policy following closely the contract of the Fidelity and Casualty, another, a general health policy furnishing indemnity for temporary total disability caused by all diseases except consumption or tubercular disease in any form, venereal disease, insanity, or disease resulting directly or indirectly from the use of intoxicating liquors or narcotics.

In the general health policy the annual premium for indemnity at the rate of $5.00 per week, limited to fifty-two weeks, was according to the following table:

GENERAL HEALTH POLICY.

Annual Premiums.

Age	Premium			Age	Premium
20 to 29	$ 8.00	38	$ 9.80	47	$13.60
30	8.20	39	10.00	48	14.20
31	8.40	Age	Premium	49	14.80
32	8.60	40	10.40	50	15.40
33	8.80	41	10.80	51	16.00
34	9.00	42	11.20	52	16.80
35	9.20	43	11.60	53	17.80
36	9.40	44	12.00	54	18.80
37	9.60	45	12.40	55	20.00
		46	13.00		

Issued to all whose occupations are classed as select and preferred in Accident Manual.

These rates were determined by the writer and were based upon the experience of the English friendly societies as regards the probable amount of genuine sickness and then a certain percentage was added to cover expenses and sham sickness. The Travelers' had about planned to issue these two contracts, the special health and the general health, when the Aetna took up the question also, and arrangements were made so that the two companies adopted these two contracts at the same rates and under the same conditions, and they were placed upon the market at practically the same time.

A copy of the general health policy is given below:

HEALTH POLICY.

The Travelers' Insurance Company of Hartford, Conn.

In consideration of the Premium, and of the Warranties in the Application for this Policy, which are made a part hereof,

....

hereby insures.....of.....in the State of.....
by occupation ..... for the term of one year from the .... day of .....18.... in the sum of ..... dollars a week, for the period of not less than seven days and not more than fifty-two weeks, during which he shall, independently of all other causes, be continuously and wholly disabled and prevented by any bodily disease except those hereinafter named, from transacting any and every kind of business pertaining to his said occupation.

(a) This insurance does not cover disability resulting from voluntary or unnecessary exposure to contagion or infection; nor from any disease resulting directly or indirectly from the use of intoxicating liquors or narcotics; nor from any of the following diseases: Consumption, or tubercular disease in any form; venereal disease, insanity, or any disorder complicated therewith; nor from any disease for which the insured is not treated by a physician; nor from any disease or sickness resulting from injury by violence; nor from any disease or sickness occasioned by, or contracted during war, or while engaged in naval or military service.

(b) This insurance does not cover disability from any disease contracted within fifteen days from noon of the date of this policy; nor does it cover disability for any period for which the insured has either made claim or may become entitled to indemnity from this or any other company or association, for or on account of injuries by external and accidental violence.

(c) If the insured carries health or sick benefit insurance in companies or associations, or both, providing for an aggregate weekly indemnity in excess of his average weekly earnings, this Company shall pay only such proportion of this insurance as such earnings shall bear to the aggregate of the weekly indemnity of the entire insurance so carried.

(d) This insurance begins and ends at twelve o'clock noon, and shall not take effect unless the premium is paid previous to any illness under which claim is made. The Company may cancel this policy at any time, by written notice mailed to the insured at the address given in his application therefor, and upon surrender of such cancelled policy the unearned portion of the premium therefor shall be payable to the insured, upon demand.

(e) Any medical adviser of the Company shall be allowed to examine the person or body of the insured, in respect to any alleged disease or sickness, in such manner and at such time as he may require.

(f) Immediate written notice must be given to the Company at Hartford, Conn., of any disease or sickness for which a claim is to be made, with full particulars thereof and the full name and address of the insured. Affirmative proof of duration of disability must also be furnished to the company within two months from the termination of disability, which proof must affirmatively establish the fact that the sickness and disability were not caused by any of the diseases herein above excepted. Legal proceedings for recovery hereunder shall not be brought before the expiration of three months from the date of filing final proofs at the company's home office; nor brought at all unless commenced within eighteen months from the commencement of disability.

(g) This insurance covers only when the disease is contracted and the sickness and disability sustained within the limits of the United States, Canada, or Europe, but does not cover disease contracted, or sickness or disability sustained, in any part of Alaska, or the British possessions in America north of the sixtieth degree of north latitude and west of the fifty-third degree of longitude west from Washington, D. C., or in any territory of the United States acquired since 1897.

(h) No agent has power to waive any condition of this policy; nor shall notice to, or the knowledge of, any agent or of any other person of anything not written in this application, be held to effect a waiver or estoppel upon the company, or to change the terms of this contract.

In witness whereof, The Travelers' Insurance Company has caused this contract to be signed by its President and Secretary, and countersigned by ....., agent, at ..... this ..... day of ..... 18....

....., Secretary. ....., President.

The issue of the general health policy by either the Travelers' or the Aetna has never been large, not large enough to obtain an experience sufficient to be reliable, but what little experience has been obtained seems to indicate two things: first, the premium is none too large for profitable business; and, second, the premium is too large to permit a large sale of the policy.

With reference to the special health policy: The Travelers' Insurance Company, commencing to issue this contract in March, 1899, had nearly nine thousand policies in force at the beginning of 1901, covering about $3,500,000 insurance. Its experience up to that time was fairly satisfactory with the exception of claims for bronchitis, which were excessively heavy, having reached by the end of January 32.21 per cent. of the total claims paid, by the end of February 34.75 per cent. of the total claims paid, by the end of March 36.70 per cent., and by the end of April 37.85 per cent. Thus, in a list of fifteen diseases, including typhoid fever, pneumonia, pleurisy, appendicitis, and diphtheria, bronchitis called for more than one-third of the entire payments. Practically all of the other stock accident companies which were issuing this contract or one similar to it had about the same experience, and, as a result, about this time, early in 1901, bronchitis was struck out of the contract, and several other diseases substituted. The Travelers' in the place of bronchitis inserted the seven following diseases: Cerebral apoplexy, brain fever, epilepsy, hydrophobia, sunstroke, malignant pustule, and mumps. The claims paid on these seven diseases added to the contract have been a mere fraction of the claims paid for bronchitis.

The following are three tables giving the experience of the Travelers' Insurance Company on the special health policy from the beginning of the business up to 1902. Table I. shows the number of policies in force at the end of each month, from January, 1900, to January, 1902, the amount of risk, which is obtained by multiplying the weekly indemnity by the number of weeks for which indemnity is payable, the gross premiums in force at the end of each month, and the claims paid for each month. It will be noticed that the business is gradually but steadily increasing. The very heavy claims for the first four months in 1901 are largely due to cases of bronchitis.

Table II. gives the claims paid from the beginning of business to January 1, 1903, classified according to the disease and arranged both by number and amount and a column showing the percentage by amounts for each disease. In this table it should be borne in mind that it covers the period when bronchitis was in the contract and also the period when the last seven diseases had been substituted for bronchitis. The percentage for bronchitis, therefore, is greatly reduced owing to the fact that for the period under consideration bronchitis was not in all of the contracts.

Table III. gives a statement of the number, amount, and per cent. by amounts of the claims paid in the case of those diseases which were in the contract before and after the striking out of bronchitis; in other words, the diseases in this table were in all the contracts issued.

TABLE I.

Experience of the Travelers' Insurance Company.—Special health policies.—Insurance in force and claims paid by months.

	No. of pols. in force end of month	Amt. of weekly indemnity at risk end of month (26 x amt. in force)	Gross premiums in force end of month	Claims paid during month	
				No.	Amt.
1900.					
January	1,763	$ 982,930	$15,146	5	$ 169
February ...	2,255	1,258,660	19,411	20	1,015
March	2,708	1,472,640	22,745	24	903
April	3,303	1,693,120	25,920	42	2,358
May	4,302	2,035,852	32,405	42	1,931
June	5,579	2,524,201	40,344	29	1,028
July	5,991	2,673,298	42,791	25	1,242
August	6,698	2,879,387	46,205	20	1,205
September ..	7,251	3,008,568	48,581	25	958
October	7,758	3,134,902	50,796	36	2,666
November ..	8,062	3,251,837	52,234	33	1,656
December ...	9,136	3,590,799	57,934	71	2,980
1901.					
January	8,976	3,531,818	57,001	66	2,540
February ...	9,527	3,756,211	60,682	143	6,159
March	9,618	3,821,049	61,829	162	6,753
April	9,886	3,898,109	63,469	126	4,999
May	10,504	4,145,746	67,745	123	5,886
June	11,623	4,588,695	74,944	86	3,054
July	11,728	4,644,842	75,902	56	4,484
August	11,937	4,745,618	77,463	55	2,418
September ..	12,233	4,851,832	79,208	61	2,952
October	12,281	4,858,804	79,352	62	3,878
November ..	12,125	4,814,825	78,360	67	3,826
December ...	12,854	5,089,229	82,760	82	4,241
1902.					
January	12,154	4,847,741	78,719	102	5,385
February ...	12,324	4,919,475	79,898	84	5,131
March	12,692	5,078,862	82,541	101	5,240
April	12,758	5,078,784	82,520	84	5,106
May	12,904	5,196,655	84,125	111	5,855
June	13,666	5,531,340	89,291	69	3,798
July	13,713	5,578,803	89,817	67	3,673
August	13,987	5,718,425	91,983	58	2,814
September ..	14,396	5,860,524	94,246	66	3,348
October	14,669	5,976,297	96,179	61	5,040
November ..	15,024	6,067,304	98,186	69	4,020
December ...	15,883	6,401,657	103,838	86	5,129

TABLE II.

Experience of the Travelers' Insurance Company.—Special health claims paid to January 1, 1903.

	Number	Amount	Per cent. by amounts
Typhoid Fever	371	$34,568	27.6
Bronchitis	616	21,139	16.9
Pneumonia	338	18,153	14.5
Appendicitis	177	15,251	12.2
Pleurisy	414	14,539	11.6
Erysipelas	89	3,991	3.2
Smallpox	69	3,579	2.9
Measles	97	2,493	2.0
Peritonitis	66	2,119	1.7
Diabetes	28	2,024	1.6
Mumps	75	1,679	1.3
Diphtheria	25	1,189	1.0
Brain Fever	10	1,029	.8
Scarlet Fever	19	767	.6
Paralysis	1	750	.6
Sunstroke	20	537	.4
Cerebral Apoplexy	6	496	.4
Epilepsy	1	400	.3
Varioloid	6	207	.2
Malignant Pustule	3	163	.1
Unknown	1	50	.1
Typhus Fever	0	0	0.0
Asiatic Cholera	0	0	0.0
Hydrophobia	0	0	0.0
	2,432	125,123	100.0

TABLE III.

Experience of the Travelers' Insurance Company.—Special health claims paid to January 1, 1903.—Diseases that were in both contracts.

	Number	Amount	Per cent. by amounts
Typhoid Fever	371	$34,568	35.0
Pneumonia	338	18,153	18.4
Appendicitis	177	15,251	15.4
Pleurisy	414	14,539	14.7
Erysipelas	89	3,991	4.0
Smallpox	69	3,579	3.6
Measles	97	2,493	2.5
Peritonitis	66	2,119	2.1
Diabetes	28	2,024	2.1
Diphtheria	25	1,189	1.2
Scarlet Fever	19	767	.8
Varioloid	6	207	.2
	1,699	98,880	100.0

At the beginning of 1903 the Travelers' added the following nine diseases to the list in its special health policy, making the total number of diseases covered thirty.

Scarlatina.
Cholera Morbus.
Angina Pectoris.
Yellow Fever.
Tetanus.
Whooping Cough.
Acute Hydrocele.
Cancer.
Spinal Meningitis (acute cerebral).

The experience of the company showed that if this change was not profitable it probably would not result in any serious loss. In other respects the contract remained practically the same.

The general health policy was also changed about the same time, by making the premium for ages eighteen to fifty $7.00 a year for $5.00 weekly benefit, and $9.00 for ages fifty-one to sixty. Also, in addition to the benefits already granted in the policy, the payment of certain specified sums for certain surgical operations was promised in accordance with the following schedule of operations.

Schedule of Operations.—General Health Policy.

In addition to Indemnity pays for Surgical Operations performed within ninety days of commencement of disability, as per Schedule below:

Abscess.—Incision	$ 5
Abdomen.—Cutting into for diagnosis or treatment of organs therein	100
Aneurism.—Non-traumatic. Operation for, by tying of artery	50
Appendicitis.—See Abdomen.	
Bone, Disease of.—Removal of diseased portion of bone	25
Carbuncle.—Incision	10
Chest.—Cutting into for diagnosis or treatment of organs therein	35
Cancer, Lip.—Removal of, by cutting operation	25
Eye, Ear, Nose.—Any cutting operation	10
Eye.—Removal of	50
Gangrene.—Amputation of fingers or toes	10
Foot or hand	25
Goitre.—Cutting operation for permanent cure	75
Hydrocele.—Incision and treatment of sac	25
Inflammation of Joint.—Incision into joint	25
Intestinal Obstruction. See Abdomen.	
Kidney.—See Abdomen.	
Mastoiditis.—Cutting operation for removal of diseased bone	50
Nerve.—Cutting operation for stretching	25
Rectum.—Cutting operation for hemorrhoids, external	15
Hemorrhoids, internal	25
Prolapsed	25
Fistula in ano	20
Malignant stricture	100
Rupture.—Cutting operation for complete and permanent cure	75
Skull.—Cutting into for non-traumatic lesions	100
Stricture.—Æsophagus. Cutting operation (external) for	100
Stone in Bladder.—Removal of, by cutting or crushing operation	75
Tapping of Abdomen	25
Bladder	15
Chest	15
Ear Drum	10
Hydrocele	10
Joints	10
Trachea.—Cutting into for removal of foreign bodies for relief of difficult breathing	35
Throat.—Any cutting operation	15
Tumors.—Removal of, by cutting operation, malignant	50
Benign	25
Varicocele.—Cutting operation for permanent cure	25
Veins, Varicose.—Cutting operation for permanent cure	25

Surgical benefits are payable only when made necessary by diseases covered by the policy.

These changes in these two health contracts were in line with the action of most of the other stock accident companies, but the changes made in the general health policy were not in any way justified by the experience, in fact, all of the experience pointed in the opposite direction. More than this, the placing of a general health policy on the same premium for ages eighteen to fifty and the same premium for ages fifty-one to sixty, was right in the face of the plain teachings of actuarial science. Such action was not taken, however, as the result of ignorance, but was simply in answer to the demands of competition in the accident business. The course pursued would help the accident business, and the decision in regard to the health business was governed entirely by the requirements of the accident business. Such a state of affairs is greatly to be regretted because, as long as it exists, the proper solution of the question of health insurance remains practically impossible.

The situation of the health insurance business in the United States at the present time, according to the latest information obtainable, is about as follows:

According to the Argus Chart for 1903, figures are given for twenty-three regular accident companies. Of these twenty-three, sixteen are writing health policies. Four of these sixteen did not separate their health business from their regular accident business. The other twelve received $569,276 in premiums and paid $261,257 in losses in 1901. In 1902 they received $767,885 in premiums and paid $376,466 in losses. The figures for 1903 will undoubtedly show a considerable increase over those for 1902. If all the business of the assessment associations and fraternal orders were included, these figures would be several times as large, but it is practically impossible to obtain complete figures in regard to the assessment and fraternal associations.

As a result of the six years that the stock accident companies have now been engaged in the health business, something has been learned and some progress has been made in certain lines. On the other hand, some of the most important features of the problem are no nearer a solution than fifty years ago.

The business is now being carried on by the very best of the stock accident companies with such financial backing that, whatever contract these companies may issue, it can be assumed that the contract will be carried out. Also, the men connected with the work are trained insurance men and can be depended upon to make no serious mistakes. As far as experience is concerned, a fairly reliable experience has been obtained in regard to the claims payable under a health policy covering a limited number of named diseases. Also, sufficient knowledge of the business has been obtained, so that the companies can calculate with reasonable accuracy what allowance must be made for the expense of running the business.

This practically completes the account of things that have been learned and the progress that has been made up to the present time.

The list of things still to be learned in connection with this business is longer.

It is perfectly well known that the average number of weeks of sickness per year increases with the age, just as the rate of mortality increases with the age. The only difference is that the rate of increase in the number of weeks of sickness per year as the age advances is greater than the rate of increase in the mortality. Even in accident

companies it is recognized that persons of advanced age are not first class risks. While the liability to meet with an accident is not quite so great at the more advanced age, yet the average period of disability in the case of those who have met with an accident is materially greater, so as to make the risk upon the whole less desirable. But in the case of health insurance there is a material increase in the liability to sickness, and also a material increase in the period of disability in case one is taken sick. The combination of these two facts, as shown by general statistics in regard to sickness, conclusively demonstrates that the number of weeks' sickness at age fifty is at least twice as great as that at age twenty, and the number of weeks' sickness at age sixty is at least twice as great as at age fifty. There is no company in this country, however, which has obtained an experience from policies covering all diseases, and showing the rate of sickness at different ages, sufficiently extensive to be taken as a guide. No regular company has issued policies on these lines in sufficient number to give any such experience. Even the most complete health policies which have been issued by the companies in this country have generally made an exception of rheumatism, tuberculosis, and two or three other diseases, and all such contracts have usually had a clause in them giving the company the right to cancel the policy at any time by the return of unearned premiums, or, at most, the duration of the policy has been limited to one year, or, possibly, in a few cases, to a very small number of years.

Another great difficulty which has not as yet been solved, and which really is the most serious trouble in connection with the business, is the way to deal with malingering, feigned sickness and misrepresentation in regard to claims. This is bad enough in the accident business, but trouble of this kind is slight in the accident as compared with what is met with in the health business. If a man has met with an accident it is a very rare case when there is not some visible external material evidence of the accident. But in the case of health claims, conditions are entirely different. In the case of a large number of health claims there is no external or visible evidence that the insured is sick. Reliance is wholly based upon the statement of the insured, generally backed up by the statement of the insured's physician. The adjuster of one of the companies that has of late years been doing considerable health business gives as his opinion that of the claims paid by the company with which he is connected, not more than 50 per cent. represent genuine sickness necessarily causing disability.

Bearing upon this phase of the question, the following quotation from an article on Sickness Insurance, by Henry Brown, in volume i. of the Journal of the Federation of Insurance Institutes, has an application to health business in this country as well as in Great Britain.

"Most men who are at the head of a business, or engaged in a profession, almost as a matter of custom, now get away to the country or the coast for a short time every year. Obviously they go away for reasons of health. In some cases the breaking-down point has almost been reached. Others, again, seek relaxation, though needing it less, in order that their physical condition may be satisfactorily maintained; and it is undoubtedly hard at times to convince men that sickness insurance is not intended to provide the means for obtaining a holiday. Some imagine that a doctor's certificate ought to settle the whole question, and I have known men able to produce such certificates who could take their afternoon at tennis. Others, again, have possessed sufficient vitality, in spite of their certificate, to be able to engage in a cricket match; and still others could take a long spin upon their cycles. Swimming, shooting,

boating, and hunting have all been indulged in by men who were away from home 'under doctor's orders,' and it is, therefore, necessary to lay down a regulation that convalescence, or what might be technically termed 'partial disablement,' shall not be covered in connection with this form of insurance. Of course, if no premium is charged to provide for convalescence the exclusion of the benefit can wrong no one."

Thus far no remedy for this evil seems to have been found by the stock companies. In the case of certain benefit societies there is a mutual interest and a general inexpensive supervision which tends to reduce the payment of unjust claims to a minimum amount. But in the case of stock companies every interest except that of the company management seems to be directed toward the expansion of the claim payments. This is clearly shown in the statistics of accident companies, where the average period of disability for the stock companies is 50 per cent. greater than for the associations, and 100 per cent. greater than for certain of the large railroad companies in this country which pay indemnity to their employees in case of disabling accidents. And the more reliable the company and the higher its reputation, the greater the claim payments under contracts which, as far as their wording is concerned, are practically equivalent. The situation is aggravated in the health business by the fact that the average size of the claims is small, and to contest such a claim, or even to exercise a very thorough investigation, usually costs more than to pay it. Whether or not a health claim is one that ought to be paid is generally a question of opinion, with no perfectly clear facts on either side to settle the case. The claimant's physician says the claim should be paid; of course, the claimant and his attorney say the same thing. The company's physician says that the claim is not a just one according to the contract. The case goes to the jury, and the jury always decides against the company. The Travelers' Insurance Company has paid over three thousand health claims. It has taken only two cases into court, and has been beaten each time.

There is undoubtedly a demand in this country for health insurance, but the great difficulty is that the kind of health policy which the public demands has not yet been offered, and when it is offered it will have to cost so much that most of those wanting such insurance will find that they cannot afford it. The kind of policy that is wanted by the public is a policy in many ways along the lines of a regular life policy, a level premium policy covering all kinds of disabling sickness, a policy which if once issued cannot be cancelled so long as the insured pays the premiums as they become due, a policy which, after it has been in force for a few years, will have a cash surrender value, a loan value, and a paid-up value, a policy which will from year to year have an accumulating reserve, just as in the case of a whole-life contract, and which will gradually approximate the value of a life annuity. Such a contract will necessarily cost money, and, as long as 40 to 50 per cent. of the claims paid represent feigned sickness, or at least do not represent actual disability, it will be impossible to put such a contract on the market at a price which will be reasonable, or which the public can afford to pay. Even if such a contract were to-day placed upon the market at a reasonable price it would be impossible to sell it so long as the stock companies, governed by the demands of the accident business rather than by the best interest of health insurance, are selling a health contract at unprofitable rates. But, on the other hand, if in time some way is found to eliminate the cases of sham sickness, and in other respects the business is conducted with a strict regard for its own proper development rather than the interests

of some other branch of insurance, there will then be a possibility of placing upon the market a complete health policy of such a nature that the public will appreciate its value and at such a rate that the public will be able to pay the premium.

We are all familiar with the many arguments in favor of a life insurance policy as a means of protection for the widow and orphan, its high value, and its great necessity. But as far as the question of protection is concerned, every argument in favor of a life policy holds with even greater force in favor of a complete health policy capable of tiding the widow and the orphan over the period during which the natural protector has not only lost his earning capacity but is a source of increased expense for maintenance and for medical and surgical aid, a period which comes before the life insurance money is available; a period liable to come to any man and sometimes lasting for years.

It may be that some of the difficulties connected with health insurance are insurmountable, but the real solution of the problem would be of such great value to the whole country that it is to be hoped before many years have passed, inasmuch as some progress has been made, and the question is now in more competent hands, it will be taken up more seriously, dealt with solely from the standpoint of its own necessities, and eventually placed upon a basis that will be reasonable to the insured, fairly profitable to the company, and permanent in its nature.

RÉSUMÉ.

SUR L'HISTOIRE DE L'ASSURANCE CONTRE LES MALADIES AUX ÉTATS UNIS.

Par H. J. Messenger.

C'est en 1847 qu'on commença à assurer contre les maladies aux États Unis. Trois compagnies commencèrent ce genre d'affaires presqu'en même temps: La Massachusetts Health Insurance Company de Boston, La Health Insurance Company de Philadelphie et la Eagle Health and Life Insurance Company de Jersey City. Il y eut d'autres compagnies organisées à peu près à la même époque et beaucoup d'autres quelques années plus tard, mais ces trois compagnies semblent avoir été les premières et les plus importantes.

Lorsqu'elles commencèrent leurs affaires ces compagnies avaient très peu d'expériences qu'elles puissent suivre. Leurs fonctionnaires n'étaient pas des assureurs expérimentés, ne savaient pas quel serait le coût d'entretien d'une telle affaire et n'avaient non plus aucuns renseignements sur les fraudes et tromperies qui les attendaient. Il n'y avait en somme rien qui puisse servir de guide sur la quantité de maladies à prévoir, à l'exception de l'expérience des sociétés de secours mutuels anglaises qui donnait assez exactement la quantité de maladies *vraies* se produisant en Angleterre. Les taux de ces nouvelles compagnies aux États-Unis furent presque entièrement basés sur l'expérience des sociétés anglaises de secours mutuels.

La Massachusetts Health Insurance Company, qui présente probablement le meilleur critérium du nouveau système, émit des contrats à durée de un, deux, trois ou cinq ans, avec des termes uniformes annuelles suivant l'âge à l'entrée et la durée souscrite. Elle limitait ses taux, cependant, à l'âge d'environ 50 ans. Le tableau suivant des taux annuels suivant la durée et l'âge d'entrée, pour un bénéfice hebdomadaire de 4 dollars pendant l'incapacité due aux maladies, donne un exemple des primes de la compagnie du Massachusetts:

Age	Un an	Deux ans	Trois ans	Cinq ans
20	$4.50	$4.95	$5.17	$5.62
30	5.00	5.50	5.75	6.25
40	6.50	7.15	7.47	8.12
50	9.00	9.90	10.35	11.25

Les taux et méthodes d'autres compagnies sont à peu près sur mêmes bases les taux du début variant peu. Quelques années, cependant, suffirent à démontrer que cette affaire n'était pas profitable et n'aurait pas de succès. Durant cette première période les compagnies d'assurance contre la maladie firent beaucoup d'affaires, comme le montrent les rapports des différentes compagnies. Leur insuccès eut pour cause, dans une large mesure, les maladies *feintes* pour lesquelles on payait les indemnités. Les Compagnies d'assurance étaient obligées, vu la somme relativement minime des indemnités individuelles, d'accepter la déclaration de l'assuré et de son médecin, concernant la maladie et l'incapacité causée. Il était ainsi possible avec l'aide de docteurs sans scrupules, de toucher des indemnités qui n'étaient pas dues suivant les termes du contrat. Les compagnies ne pouvaient faire une investigation complète sur chaque demande individuelle d'indemnité, de sorte qu'elles subissaient une grosse proportion de pertes pour lesquelles elles ne touchaient pas de primes, puisque, comme on l'a dit, les taux étaient basés sur l'expérience anglaise de sociétés de secours mutuels pour de *vraies* maladies. Les sociétés anglaises étaient, par leur caractère, à même d'éviter ces fraudes. Une telle affaire qui dans le cas de certaines compagnies conduisait à une recette de primes inférieure aux pertes encourues, ne pouvait prospérer. Les compagnies américaines, devant cet insuccès, confièrent leur direction à des gens encore moins expérimentés, la concurrence augmenta et pour y faire face on arriva à assurer sans tenir compte de l'âge des assurés, ce qui enlevait à l'affaire toute semblance de base scientifique. Tous ces facteurs se combinèrent pour affaiblir et finalement détruire ces compagnies dont il ne resta pas une seule.

Il y eut deux exceptions. La « Hildise Bund,» la plus importante société allemande d'assurance (avec 10,000 membres), prenait des taux approximativement équivalents à ceux que prennent les compagnies actuelles pour leurs assurances contre les maladies. Cette société était bien administrée, mais, avec le temps, les primes se trouvèrent insuffisantes, et elle finit par transférer ses risques à la Metropolitan. L'autre exception se trouve dans les débuts de la Prudential Insurance Company.

Ce qu'on peut appeler la seconde période d'assurances contre les maladies aux États-Unis a commencé en 1898 et s'étend jusqu'à nos jours. Il s'agit de la période pendant laquelle les compagnies d'accidents à actions les plus importantes se sont mises à pratiquer l'assurance contre les maladies. Ainsi que l'indique le nombre toujours croissant d'affaires l'assurance contre les maladies, telle qu'elle est pratiquée à présent, appuyée par un gros capital et une administration éclairée, montre qu'elle ne disparaîtra plus — bien que le problème ne soit pas encore entièrement résolu.

C'est la Fidelity & Casualty Company de New York qui a émis la première assurance contre les maladies. Elle a été suivie de près par « The Travelers » et « The Aetna,» et il y a maintenant 16 compagnies qui émettent ce genre d'assurance. La première police de la Fidelity & Casualty Company n'accordait pas d'indemnité pour incapacité due à toutes les maladies, mais seulement aux maladies spéciales mentionnées au contrat. En 1899 « The Travelers » et « The Aetna » émirent une police générale garantissant l'incapacité totale produite par toutes les maladies, excepté la tuberculose, les maladies vénériennes, l'insanité et les maladies produites par l'usage de boissons enivrantes. Cette police n'était émise que pour les classes choisies et préférées (classification des accidents) et contait, suivant l'âge, de 8 dollars pour l'âge de 20 ans, à 20 dollars pour l'âge de 55 ans, ces taux étant basés sur l'expérience des sociétés de secours mutuels anglaises. L'émission de polices contre les maladies en général n'a jamais été assez forte pour qu'on puisse en tirer une expérience. Ceci est dû au prix de la prime, qui ne s'est pas trouvé populaire, bien qu'il ne semble pas exagéré.

L'expérience de la police spéciale contre les maladies s'est trouvée favorable. Les Compagnies ont quelque peu changé leurs contrats suivant les enseignements de l'expérience; le changement le plus important a été la suppression, parmi les maladies assurées, de la bronchite, qui donnait une expérience très défavorable, et l'insertion d'autres maladies à sa place. Il est intéressant de noter à cet effet que dans l'expérience de « The Travelers » les demandes d'indemnité pour la bronchite se montaient à la fin de Janvier 1901 à 32.21% des demandes totales, à 34.75% à la fin de Février, à 36.70% à la fin de Mars, et à 37.85% à la fin d'Avril. Ce résultat dans une liste de 25 maladies comprenant la fièvre typhoïde, la pneumonie, la pleurésie, l'appendicite et la diphtérie montre bien un élément contre lequel les compagnies d'assurances contre les maladies doivent se mettre en garde. L'expérience de « The Travelers » jusqu'au 1er Janvier 1901 sous leurs contrats spéciaux contre la maladie est, suivant le genre d'indemnité réclamée, comme suit: fièvre typhoïde 27.6%; bronchite 16.9% (bronchite n'étant pas couverte par les contrats pour la période entière); pneumonie 14.5%; appen-

dicite 12.2%; pleurésie 11.6%; érésipèle 3.2%; petite vérole 2.9%; rougeole 2%; péritonite 1.7%; diabète 1.6%; oreillons 1.3%; diphtérie 1%; le restant divisé entre la fièvre cérébrale, la fièvre scarlatine, la paralysie, l'insolation, l'appoplexie cérébrale, l'épilepsie, la variole, pustule maligne et inconnu. Il n'y a pas eu de demande basée sur le typhus, le choléra asiatique et l'hydrophobie.

On a beaucoup changé la police générale contre la maladie pour faire face à la concurrence. On prend maintenant jusqu'à l'âge de 5 ans un taux unique, qui change entre 50 et 60 ans. On a aussi ajouté au contrat de police une liste de sommes fixes payables pour certaines opérations chirurgicales qui seraient faites dans les 90 jours qui suivent le commencement de l'incapacité. Ces changements dans la police générale contre la maladie ne sont aucunement justifiés par l'expérience, car le groupement des taux pour des âges différents est directement contraire à la théorie.

Que l'assurance contre les maladies est devenue une institution permanente de ce pays, se voit par l'accroissement de son volume. En 1901 les douze compagnies, qui publient des rapports séparés de santé, ont reçu 569,267 dollars en primes et ont payé 261,257 dollars en indemnités. En 1902 elles ont reçu 767,885 dollars et payé 376,466 dollars. Ceci ne comprend pas les rapports des diverses sociétés de secours mutuels qui, si on les ajoutait, doubleraient plusieurs fois ces chiffres.

L'expérience des compagnies contre les accidents durant les six dernières années a montré ce que ces compagnies peuvent faire sur des polices couvrant un nombre limité de maladies contenues dans la police spéciale contre les maladies. On a obtenu une bonne expérience sur cette classe de polices, ainsi qu'une bonne idée des dépenses et des difficultés d'opération. Il y a encore beaucoup à apprendre, cependant, et d'abord il faudrait une expérience suffisamment digne de confiance pour être prise comme base d'un système de taux. Il est démontré, comme il l'a été pour les compagnies qui ont les premières essayé ce genre d'affaires, que le gros inconvenient que l'on rencontre pour obtenir une assurance profitable est dû aux pertes subies par les maladies feintes et les fraudes. Il est très difficile et somme toute impossible de découvrir ces fraudes, appuyées qu'elles le sont par les déclarations de l'assuré et de son médecin. Il est presque impossible pour une compagnie par actions contre les accidents de se garder contre des demandes d'indemnité injustifiées, tandis qu'une société purement mutuelle peut se protéger avec l'aide de ses membres intéressés. On a aussi trouvé qu'il ne vaut pas la peine de porter ces petites causes devant les tribunaux.

Le temps n'est pas encore arrivé où l'on puisse émettre la police modèle contre les maladies, car une compagnie ne pourrait pas la mettre sur le marché à un prix qui soit populaire. Quand ce temps viendra la police ressemblera probablement à la police actuelle de vie, avec son accumulation de réserve et sa possibilité de vente, avec une prime unique pour chaque âge à l'entrée et elle changera graduellement en une rente viagère pour les dernières années de vie.

KURZE NOTIZ.

ÜBER DIE GESCHICHTE DER GESUNDHEITS-VERSICHERUNG IN DEN VEREINIGTEN STAATEN.

Von H. J. Messenger.

Versicherung in Krankheitsfällen ist in den Vereinigten Staaten zuerst in 1847 ausgestellt worden. Drei Gesellschaften fingen dies Geschäft an zu ungefähr gleicher Zeit: The Massachusetts Health Insurance Company in Boston, The Health Insurance Company in Philadelphia und die Eagle Health & Life Insurance Company in Jersey City. Es wurden um dieselbe Zeit herum noch einige andere Gesellschaften organisiert, diese drei genannten jedoch scheinen die ersten und bedeutendsten gewesen zu sein.

Als diese Gesellschaften ihr Unternehmen begannen, hatten sie wenig Erfahrung. Die Beamten waren keine ausgebildeten Versicherungs-Leute, noch hatten sie irgend welche Kenntnis von den Unkosten der Aufrechterhaltung eines solchen Unternehmens, noch eine Ahnung von dem Betrug und den Hinterlistigkeiten, die sie erfahren mussten. Es gab gewissermaassen keinen Anhalt für den Betrag, welchen eine Krankheit kosten könnte, mit Ausnahme der Erfahrungen der englischen Unterstützungs-Vereine, die den Betrag der Kosten einer wirklichen Krankheit, wie in England vorkommend, mit einiger Sicherheit anzu-

geben in der Lage waren. Die Raten dieser neuen Gesellschaften in den Vereinigten Staaten waren hauptsächlich auf den Erfahrungen der englischen Unterstützungs-Vereine gegründet.

The Massachusetts Health Insurance Company, die vielleicht die beste Probe des neuen Systems abgab, gab Versicherungs-Kontrakte für ein, zwei, drei oder fünf Jahre aus, mit gleichen jährlichen Raten, unter Berücksichtigung des Alters beim Eintritt und der Dauer der Versicherung. Sie begrenzten ihre Raten jedoch mit ungefähr 50 Jahren. Diese Prämien der Massachusetts Gesellschaft werden erläutert durch folgende Citierung der jährlichen Raten, mit Berücksichtigung des Termins und Eintrittsalters für eine wöchentliche Vergütung von $4.00 während Arbeits-Untauglichkeit, hervorgerufen durch Krankheit:

Alter	1 Jahr	2 Jahre	3 Jahre	5 Jahre
20	$4.50	$4.95	$5.17	$5.62
30	5.00	5.50	5.75	6.25
40	6.50	7.15	7.47	8.12
50	9.00	9.90	10.35	11.25.

Die Raten und Methoden der anderen Gesellschaften sind auf ungefähr gleicher Basis festgestellt, und die Raten variierten zuerst nicht bedeutend. Einige Jahre genügten jedoch, um den Beweis zu liefern, dass das Geschäft kein einträgliches war und keinen Erfolg erzielen konnte.

Die Gesellschaften machten bedeutende Geschäfte in dieser ersten Periode, wie aus den Berichten der verschiedenen Gesellschaften hervorgeht. Ihr Untergang war hauptsächlich durch die Praxis erheuchelter Krankheit verschuldet, für welche Entschädigungen gezahlt wurden. In dieser Hinsicht waren die Gesellschaften verpflichtet, wegen der verhältnissmässigen Geringfügigkeit der einzelnen Ansprüche die Aussagen der Versicherten hinsichtlich der Krankheit oder Unfähigkeit als wahr anzunehmen, wenn dieselben von einem Arzte beglaubigt waren. Mit Hilfe von ungewissenhaften Aerzten war es möglich, Entschädigungen zu erheben, die eigentlich nach den Bedingungen der Contracte nicht zahlbar waren. Die Gesellschaften waren unfähig, die einzelnen Fälle genau zu untersuchen, und die Folge davon war ein bedeutender Prozentsatz von Verlust, für welchen keine entsprechenden Prämien eingingen, da, wie oben erwähnt, die Raten auf Grundlage der Erfahrungen der englischen Unterstützungs-Vereine für wirkliche Krankheitsfälle festgesetzt waren. Die englischen Vereine waren ihrem Wesen nach im Stande, sich gegen derartige Täuschungen zu schützen. Solche Krankheits-Versicherungs-Unternehmen, welche für einige Gesellschaften eine geringere Einnahme, wie der Verlust war, ergaben, konnten natürlich nicht blühen. Die Leitung der amerikanischen Gesellschaften ging in noch unerfahrenere Hände über mit der betrübenden Erfahrung, dass Concurrenz entstand und demzufolge Policen ohne Rücksicht auf das Alter der Applikanten ausgeschrieben wurden, auf diese Weise jede Annäherung an eine wissenschaftliche Basis verwischend. Alle diese Factoren zusammen entkräfteten und schliesslich vernichteten die Gesellschaften, bis schliesslich nicht eine einzige übrig blieb.

Da gab es jedoch zwei Ausnahmen; der Hildise Bund, die grösste deutsche Versicherungs-Gesellschaft (10,000 an der Zahl), berechnete Raten ungefähr äquivalent denen, welche kürzlich von den gegenwärtigen Gesellschaften für ihre allgemeinen Krankheits-Policen berechnet wurden. Diese Gesellschaft wurde gut geleitet, doch mit der Zeit erwiesen sich die Prämien unzulänglich und die Risikos wurden auf die Metropolitan übertragen. Die andere Ausnahme fand in der frühen Geschichte der Prudential Versicherungs-Gesellschaft statt.

Was man die zweite Periode der Krankheits-Versicherung nennen kann — in den Vereinigten Staaten — begann im Jahre 1898 und dehnt sich bis auf diese Zeit aus. Es ist die Periode gemeint, in welcher Krankheits-Versicherungen von den hauptsächlichsten Unfall-Versicherungs-Gesellschaften contrahiert wurden. Dieses Unternehmen, wie es jetzt besteht, unterstützt von grossem Kapital und unter fähiger Verwaltung, zeigt durch das stetige Zunehmen von Geschäft, dass es jetzt zu einem dauernden Bestehen gekommen ist, obgleich das Problem noch nicht gänzlich gelöst ist.

The Fidelity & Casualty Company in New York stellte die erste Police derartiger Krankheits-Versicherungen aus, und dieser folgten in kurzer Zeit die Policen der Gesellschaften „The Travelers" und „Aetna," bis augenblicklich ca. 16 Gesellschaften Krankheits-Versicherungen abschliessen. Die erste Police der Fidelity & Casualty Company enthielt keine Entschädigungen für Unfähigkeit infolge von *allen* Krankheiten, sondern nur infolge einiger, die in dem Kontrakt erwähnt sind. „The Travelers" und die „Aetna" gaben in 1899 allgemeine Policen heraus, die für totale Arbeits-Unfähigkeit als Folge aller Krankheiten mit Ausnahme von Schwindsucht galt, sowie mit Ausnahme von venerischen Krankheiten, Blödsinnigkeit, und Krankheiten, die auf den Gebrauch von berau-

schenden Getränken zurückzuführen sind. Solche Policen wurden nur auserlesenen und vorzuziehenden Klassen ausgestellt (Unfall-Schätzung) und kosteten, je nach dem Eintritts-Alter, von $8.00 bei 20 Jahren bis $20.00 bei 55 Jahren, die Raten begründet auf den Erfahrungen der englischen Unterstützungs-Vereine. Die Herausgabe von allgemeinen Krankheits-Policen ist niemals gross genug für eine Erfahrung gewesen. Dies ist der Höhe der Prämien zuzuschreiben, welche nicht beliebt sind, obgleich sie nichts weniger als gerechtfertigt erscheinen.

Die Erfahrung der speciellen Krankheits-Police ist eine günstige gewesen. Die Gesellschaften haben ihre Contracte ein wenig geändert, je nachdem die Erfahrung dies rathsam erscheinen liess.

Die wichtigste dieser Aenderungen ist das Ausscheiden von Luftröhren-Entzündung, womit man eine sehr ungünstige Erfahrung gemacht hat, und dafür Einsetzung von anderen Krankheiten an ihrer Stelle. Es ist interessant, im Zusammenhang hiermit zu bemerken, dass in „The Travelers" Erfahrungen die Ansprüche für „Bronchitis"-Fälle Ende Januar 1901 sich auf 32.21% der Gesammtansprüche belaufen haben, auf 34.75% Ende Februar, 36.70% Ende März und 37.85% Ende April. Dies ist ein Verzeichnis von 25 Krankheiten, einschliessend Typhus, Lungen-Entzündung, Brustfell-Entzündung, Blinddarm-Entzündung und Diphtheritis, und illustriert ein Element, gegen welches die Versicherungs-Gesellschaften sich schützen müssen.

Die Erfahrung der „Travelers" bis zum 1. Januar 1901, bei speciellen Krankheits-Policen, je nach der Klasse von Ansprüchen, ist folgende: Typhus 27.6%, Bronchitis 16.9% (diese Krankheit ist jedoch nicht während der ganzen Periode in den Contracten aufgenommen), Lungen-Entzündung 14.5%; Blinddarm-Entzündung 12.2%; Brustfell-Entzündung 11.6%; Rose 3.2%; Blattern 2.9%; Masern 2%; Bauchfell-Entzündung 1.7%; Harnruhr 1.6%; Ziegenpeter 1.3%; Diphtheritis 1%; die übrig bleibenden Ansprüche sind auf Gehirn-Fieber, Scharlach-Fieber, Lähmung, Sonnenstich, Gehirnschlag, Epilepsie, Pocken, Geschwüre und unbekannte Krankheiten vertheilt. Es sind keine Ansprüche registrirt unter Nervenfieber, asiatische Cholera und Tollwuth.

Die allgemeinen Policen sind bedeutend abgeändert worden, um den Uebergriffen von Concurrenz entgegenzutreten. Eine gleiche Rate ist jetzt bis zum 50sten Alter berechnet, variierend von 50 bis 60 Jahren. Ferner ist der Police eine Liste von specificierten Beträgen beigefügt, die für bestimmte chirurgische Operationen gezahlt werden, die innerhalb 3 Monaten nach Beginn von Arbeitsunfähigkeit vorgenommen werden. Diese Aenderungen in den allgemeinen Policen sind durchaus nicht durch die Erfahrungen gerechtfertigt, da die Gruppierung der Raten für verschiedene Lebensalter direct der Theorie zuwider ist.

Dafür, dass die Krankheits-Versicherung jetzt zum dauernden Bestehen gekommen ist, ist ein Beweis der stetigen Ausdehnung des Geschäfts. In 1901 haben die 12 Gesellschaften laut ihrer separat veröffentlichten Aufstellungen $569,276 in Prämien erhalten und $261,257 ausbezahlt. In 1902 erhielten sie $767,885 in Prämien und zahlten aus $376,466. Dies schliesst aber nicht die Berichte der Bruderschaften und Einschätzungs-Vereinigungen ein, in welchem Falle diese Zahlen bedeutend erhöht werden würden.

Die Erfahrung der Unfall-Versicherungs-Gesellschaften während der letzten 6 Jahre hat gezeigt, was diese Gesellschaften an Policen thun können, die eine beschränkte Zahl von Krankheiten umfassen, so wie diese in den speciellen Krankheits-Policen enthalten sind. Ueber diese Art von Policen hat man eine ziemlich gute Erfahrung gehabt. Man hat eine gute Idee von den Kosten und den Schwierigkeiten der Operation erhalten. Da giebt es jedoch noch eine Menge zu lernen. Zuerst wäre eine ziemlich zuverlässige Erfahrung erwünscht, die man als Grundlage für ein Raten-System nehmen könnte. Es ist erwiesen, genau so wie durch die Erfahrungen der früheren Gesellschaften in diesem Unternehmen, dass ein grosses Hindernis an einer vortheilbringenden Versicherung die Thatsache der erheuchelten Krankheiten und irrige Angaben darüber sind. Es ist schwer und manchmal unmöglich, diese Fälle herauszufinden, da dieselben von den Angaben der Versicherten und deren Aerzten abhängig gemacht sind. Es ist beinahe unmöglich für eine Unfall-Versicherungs-Gesellschaft, sich gegen solche falschen Ansprüche zu schützen, wogegen eine reine Gegenseitigkeits-Gesellschaft sich durch ihre interessierten Mitglieder schützen könnte. Es hat sich ferner erwiesen, dass es sich nicht lohnt, diese geringfügigen Fälle vor Gericht zu schleppen.

Die Zeit für eine vollkommene Krankheits-Police ist noch nicht gekommen, da eine Gesellschaft es sich nicht leisten könnte, eine solche auf den Markt zu bringen, zu einer Rate, die dieselbe beliebt machen würde. Wenn diese Zeit herannaht, wird die Police jedenfalls einem Lebens-Versicherungs-Contract gleichen mit seinen anwachsenden Reserve- und Auslieferungs-Maassnahmen, mit seinen gleichen Raten in jedem Eintritts-Alter, und wird sich nach und nach in eine Lebensrenten-Versicherung während der letzten Lebensjahre umgestalten.

LIFE ASSURANCE IN AUSTRALASIA.

BY

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Having now been connected with the business of Life Assurance in New South Wales for a period of over thirty years, I venture to bring before the present Congress some statistics illustrating its rise and progress as well as its present position. First, however, it may be well, following the example set by Mr. F. Sanderson, in his excellent paper on "Life Assurance in Canada (Transactions, Actuarial Society of Edinburgh, vol. iii., p. 155), to give a brief account of the size, climate, and resources of the Australasian colonies, in order that a better idea may be thereby formed both of what has already been achieved and what remains to be accomplished. In doing so I shall draw upon the valuable compendium of information on the subject contained in Mr. T. A. Coghlan's "Seven Colonies of Australasia." From this work we learn that the extent of these colonies is as follows:

Colony	Area in sq. miles
New South Wales	310,700
Victoria	87,884
Queensland	668,497
South Australia	903,690
West Australia	975,920
Australia	2,946,691
Tasmania	26,215
New Zealand	104,471
Australasia	3,077,377

"Australasia is more than twenty-six times as large as the United Kingdom; more than fifteen times as large as France; more than half as large again as Russia in Europe, and almost equal in extent to the Continent of Europe or to the United States of America." The mainland of Australia lies between 10° 39′ and 39° 11½′ south latitude, and the meridians of 113° 5′ and 153° 16′ east longitude, its extreme length from east to west being 2,400 miles, and the greatest breadth 1,971 miles. The island of Tasmania lies about 150 miles to the south of the coast of Victoria, and New Zealand is distant about 1,100 miles in a southeasterly direction from the mainland. As is no doubt well known, all these colonies, with the exception of the last-named, were on the first day of the present century federated under the name of the Commonwealth of Australia.

CLIMATE.

In a continent of such vast extent there are, of course, a great variety of climates, but it may be stated as a general rule, that, despite the great heat of the more tropical portions of Australia, its climate is, on the

whole, salubrious, particularly in the more thickly settled localities. The extremes of heat and cold, though no doubt considerable, are less than are experienced at places situated in the same latitude in the Northern Hemisphere. At Sydney, latitude 33° 51′ S., the highest temperature ever recorded has been 108.5°, and the lowest 35.9°; at Melbourne, latitude 37° 50′ S., the extremes have been greater, the readings ranging from 110.7° down to 27°, but the mean temperature of the year is about 6° less than that of Sydney. At Adelaide, the capital of South Australia, which is in latitude 34° 57′ S., the yearly mean is much the same as that of Sydney, the summer, however, being generally hotter and the winter colder. In Brisbane, the capital of Queensland, which is situated several degrees to the north of Sydney, the climate is, of course, considerably hotter, and still more so in the towns situated in the tropical portions of that State. Tasmania and New Zealand, on the other hand, especially the southern half of the latter colony, enjoy a much more temperate climate than the mainland of Australia. In the interior of the continent the heat in summer is often excessive, but this is generally associated with an extreme dryness of the atmosphere which conduces somewhat toward the salubrity of these regions, while on the elevated tablelands situated some distance from the coast and ranging from two to four thousand feet above the sea, a climate is generally found which can hardly be excelled in any part of the globe.

Population.

As compared with the countries of the Old World the population in Australasia is extremely sparse, and does not average more than one and a half persons per square mile of territory. The vast interior of the Continent of Australia is still practically a desert, and in reality only a comparatively narrow fringe around the coasts is at all thickly peopled. There is, however, a considerable proportion of the population congregated in the various capital cities of the different States, so much so that they contain fully 30 per cent. of the entire number. The density of population ranges from .19 per square mile in Western Australia, up to 13.67 per square mile in Victoria. The actual number of inhabitants as at the date of the last Census, March 31, 1901, is shown in the following table:

New South Wales	1,359,133
Victoria	1,201,506
Queensland	503,266
South Australia	362,604
Western Australia	184,099
Tasmania	172,475
Commonwealth	3,783,083
New Zealand	772,720
	4,555,803

Vital Statistics.

During the last thirty-five years various determinations of the rates of mortality prevailing in Australia and New Zealand have been made by different individuals, and in a brief paper on this subject contributed to the Second International Congress, I endeavored to summarize the results which had been arrived at in these investigations. The general outcome appears to be that Australasian mortality rates are, on the whole,

more favorable than those prevailing among the population of England, the advantage, however, being much greater at the infantile ages than later on in life, and the difference being comparatively slight at the principal assuring ages, at least as regards males. A comparison of the rates among females shows a perceptible advantage at all ages on the side of the Australians. As regards the mortality experience among assured lives, the published experience of the largest Australian office, the Australian Mutual Provident Society, for its first forty years, has been wonderfully favorable; the actual number of deaths being only two-thirds of those expected according to the H^m Table.

To quote again from the latest edition of Mr. Coghlan's "Seven Colonies of Australasia," the mean Death-rate per 1000 living during the decennium, 1890-1899, in each of the colonies was as follows:

New South Wales	12.49
Victoria	14.20
Queensland	12.93
South Australia	12.23
Western Australia	15.96
Tasmania	13.29
Commonwealth	13.25
New Zealand	9.86
Australasia	12.68

For the year 1901, the latest for which complete statistics are available, the figures are still more favorable, the ratios being as under:

New South Wales	11.68
Victoria	13.22
Queensland	11.91
South Australia	11.20
Western Australia	13.43
Tasmania	10.40
Commonwealth	12.18
New Zealand	9.80
Australasia	11.77

It is further interesting to note that, taking successive quinquennial periods, the rates of mortality have shown a progressive improvement since the earliest records up to the present time, the rate for Australasia during 1861-65 having been 16.75, as compared with 12.20 during 1896-1900. The death-rates in the capital cities of the various colonies are also extremely low, as the following figures (taken from the latest edition of Mr. Coghlan's "Statistics of the Six States of Australia and New Zealand") will show: Sydney, 12.62; Melbourne, 15.09; Adelaide, 13.13; Brisbane, 12.72; Perth, 16.74; Hobart, 14.46; Wellington, 10.29.

Rise and Progress of the Business.

Prior to the beginning of the year 1849, when the Australian Mutual Provident Society was inaugurated, it does not appear that any life assurance business was transacted in these colonies. If any of the British Life Offices were represented here in these early days, there is at least no record of their transactions. As regards this point, I have recently seen a copy of a Gazetteer of the Australian Colonies, by W. H. Wells, published in Sydney in 1848, in which there appears a long advertisement of the Australasian Colonial and General Life Assurance and

Annuity Company, whose Head Office was at No. 1 Leadenhall street, London, with a Branch at Sydney. This Company seems to have been amalgamated with the Liverpool and London in 1852, and I have no means of ascertaining what amount of business they transacted in Australia. The *European Assurance Company,* which failed so disastrously in 1871, was another English Office which did business in these colonies; and I believe the *Colonial,* afterwards amalgamated with the *Standard,* also carried on operations here to some extent. The *Liverpool and London* (now the Liverpool and London and Globe) has also been issuing life policies here for a number of years, but I believe the amount of business transacted is inconsiderable.

The only sources of information available, prior to the passing of the Life Assurance Acts of the various colonies, are the annual and quinquennial reports of the companies themselves, which generally contain very full particulars of the business done as well as giving complete statements regarding the valuation of the liabilities. In the year 1873 Acts, mainly based on the English Act of 1870, were passed both in Victoria and New Zealand, which rendered compulsory the furnishing of various returns in prescribed forms; and consequently from that time onward reliable statistics are available, at least as regards the local companies and those American Offices which have established Branches in Australia. As regards the one or two British Companies which have from time to time done an insignificant amount of business here, no sufficient information regarding it is available. It is, however, impossible to arrive exactly at the amount of business transacted year by year *in Australasia,* for the extra-Australian new business transacted by some of the local offices is not shown separately in any of the Returns; nor is the new business transacted by the American Companies in Australia shown separately, although the West Australian Returns give *the total in force* at the end of each year in each of the colonies as well as "elsewhere." Probably the new business done here by American companies, which is necessarily omitted in the following tables, may be mainly balanced by the amount of new business done elsewhere by Australian Offices which is *included* in the tables, owing to its being impossible to ascertain its amount separately.

For the first twenty-one years of its existence the Australian Mutual Provident Society practically had the field entirely to itself, and was thus enabled to transact a fair amount of business at an extremely moderate rate of expense. In the year 1870, however, as will be seen from Table I., two new Mutual Offices were founded, and from time to time others were added to the list. The total number, however, has never reached any considerable proportions, and there is perhaps less active competition in Australia than in either Great Britain or America, where hosts of aspirants for public favor occupy the field. It is a pleasing and significant fact that no regular Australian Life Assurance Company has ever become insolvent; although, as will be seen from the table, one or two have been amalgamated with other offices, no doubt to their mutual advantage.

Table II. exhibits the aggregate amount of new business transacted annually from 1849 to 1901, inclusive, excluding Industrial business; as well as the annual Premium receipts and Consideration for Annuities, and the amount of Funds at the end of each year.

It is impossible to obtain complete figures as to the total existing business at the end of every year, as most of the Offices only give the necessary information in their published reports on the occasion of the

periodical investigation, although from the year 1887 onward it might have been obtained at yearly intervals from the South Australian Government returns as regards the seven Companies doing business in that State. I have, therefore, obtained the particulars contained in Table III. by analyzing the valuation reports of all the companies, by means of which I am enabled to show the existing business at successive intervals of time divided into the respective classes of Assurances, Endowment-Assurances, Endowments, and Annuities, and also the corresponding Reversionary Bonuses as well as the Annual Premiums in each of these classes. As the majority of the Offices divide their profits at quinquennial intervals, I have shown the above particulars as at the end of every fifth year, the figures stated comprising those derived from the latest report of each individual Office issued during the period in question. The last period, however, embraces only three years instead of five.

In Table IV. I have further shown the total Cash Surplus, including Interim Bonuses Paid where the amount of such has been distinctly stated, which has been allotted by the various Companies during each period, in juxtaposition with the corresponding amount of Premiums received and the resulting percentages.

Further, I have exhibited in Table V. the total existing assurances of all the Companies with which I have been dealing at the end of every fifth year, showing separately the Sums Assured and the Reversionary Bonuses. These totals, however, include the extra-Australian business of several Companies which transact business in Great Britain and in South Africa the amount being shown in the Returns to the West Australian Government. On the other hand, the Australian business of the three American Companies operating here has been excluded. This, however, I find given in the latest edition of Coghlan's "Seven Colonies," the aggregate amount being £8,920,065, which would appear to include Reversionary Bonus additions. We have, therefore, the following figures as representing, as nearly as possible, the total existing Australasian business:

Total Sum Assured as per Table V.	£ 95,840,404
Total Reversionary Bonuses	10,910,552
	£106,750,956
Deduct extra-Australasian business	7,191,279
	£ 99,559,677
Add Australasian business of American Offices	8,920,065
	£108,479,742

This represents an average amount of assurance equal to £24 per head of the population of Australia and New Zealand, an amount which is in excess of that in Great Britain, Canada, or the United States. Coghlan's work, already cited, states the average assurance per head in these countries as follows: Great Britain, £15; Canada, £17; United States, £19.

It will be seen from Table II. that the annual amount of new business transacted advanced by leaps and bounds until it reached its culminating point in 1885. A minimum was afterwards reached in 1893, the year of the disastrous financial crisis, but since then the amount has again advanced, until it has pretty nearly reached the former maximum in spite of the depressing influence of the long-protracted drought which has afflicted the principal Australian States for some years past, and which is only now showing signs of having completely broken up.

Table III. exhibits in a striking manner the wonderful growth of

Endowment-Assurances which now comprise much the larger half of the policies in existence in point of number and about 40 per cent. of the whole in Amount Assured. This table also shows, as at the end of each quinquennial period, the average amount of each policy for assurances and endowment-assurances respectively, from which it will be seen that the average policy under each class has pretty steadily declined throughout the entire period covered by the table. The average premium per £100 assured for each of these classes is also shown, from which it will be seen that this also has shown a tolerably consistent decrease throughout the term, in spite of the fact that several offices have from time to time increased their rates of premium, thus proving that the average age at entry is gradually becoming less, or, in the case of Endowment-Assurances that the average *term* of the policies is becoming longer. This average term, I believe to be about twenty-five years, which probably considerably exceeds the average term of similar policies in America.

The average amount assured by each policy, taking all classes of assurances together, is shown in Table V., which also shows the average premium per cent. for the whole of the assurances taken together.

The total amount of pure Endowment business, mostly on the lives of children, is by no means large; nor has there been in the past much development of the Annuity branch, though within the last five or six years, concurrently with the great decline in the rates of interest obtainable on safe investments, there has been a considerable increase in this respect which seems to show that in the future it may perhaps assume much larger proportions.

Business Methods and Rate of Expenses.

The Australian Life Offices have been almost without exception founded upon the mutual principle, the one important exception being a Company transacting a large Industrial business in addition to its ordinary branch, besides which there are two other comparatively small proprietary offices of recent formation which transact both ordinary and industrial business.

The constitution of the mutual offices is in the highest degree democratic, the general rule being that every policy-holder insured for £100 or over is possessed of a vote which he may exercise at General Meetings of the members or at the annual elections of Directors. In many cases there is a provision for a cumulative scale of voting in proportion to the amount for which a member is insured, the maximum number being, however, generally limited to, say, twenty votes in all for any one individual. As in England and Scotland, a Meeting of the members is held once a year to receive the Annual Report of the Directors and to elect new members of the Board in place of those who retire. These elections are often hotly contested, and large numbers of votes are usually polled, the voting being generally either by proxies or by means of printed voting-papers which are sent out in advance to all the policy-holders and returned with the proper number of names, and signed by the member, either through the post or by hand, to the Office of the Company on or before the date of the Annual Meeting.

Nearly all these Offices have Branches with local boards of Directors in the capital city of each of the Colonies outside that where its Home Office is located. The members of these local Boards are not elected by the policy-holders, but are appointed by the principal Board, and have very extensive powers conferred on them. These usually include the

acceptance of lives for assurance and the issuing of the necessary policies, as well as the collection of the annual premiums thereon; also the investment of the accumulating Funds under general directions from the Head Office and the collection of the periodical interest on these investments. The work involved in the calculation of the policy liabilities, as well as the issue of the annual report and balance sheet (a copy of which is generally sent to *every policy-holder*), and the issue of the Bonus notices, is almost of necessity transacted only at the Head Office. Comprehensive returns of the transactions of each Branch are transmitted monthly to the Head Office, as well as a yearly summary at the end of each financial year in order that a full account of the whole of the Company's business throughout Australasia may be presented in the Annual Report. These annual reports of the various companies often contain a mass of detailed information considerably greater than is generally to be found in similar documents issued by British or American Companies.

The pursuit of new business is followed with an energy and persistence more akin to American than to British methods, and traveling canvassers, each often accompanied by a fully qualified medical man, penetrate the remotest recesses of the vast island continent in search of fresh lives to assure or additional proposals from those already assured. The payment of commission is generally by way of a procuration fee calculated at a percentage of the *sum assured* irrespective of the particular plan under which the policy is to be effected. This percentage in the case of an agent working in the larger cities or in thickly peopled localities may sometimes be as low as 20*s.* for each £100 assured, but in the case of those traveling in the tropical portions of Australia or in the thinly populated interior, it may range as high as 30*s.*, or even more. Sometimes, also, it may be necessary to supplement the percentage commission by a fixed weekly or monthly allowance. The payment of any *renewal commission* whatever is in Australia rather the exception than the rule. The traveling doctor is generally paid £1 1*s.* for each life he examines, irrespective of the amount of the proposal, and he usually gets in addition a moderate allowance toward traveling expenses. It is only by such means as these that the blessings of Life Assurance can be conveyed at all to many of the dwellers in the Australian "bush," who are often far removed from towns and from resident medical men.

Business obtained under these conditions might perhaps be presumed to be not only exceedingly costly but also unduly liable to lapse, and this is to some extent true, if we make a comparison with old and conservative British Companies, but if we compare the Australian figures with the results shown by the general run of American and Canadian Companies it will be found not only considerably less costly but also more enduring. Taking the latest available Returns of the South Australian Government it is found that the ratio of Forfeitures to existing business is only about 3 per cent., whereas in America, judging by the Summary Tables given in the last Massachusetts Report, it would appear to be as high as 8.5 per cent. In arriving at the latter percentage I have added the "Not taken" policies to the "Lapses"; but in Australia it is unnecessary to do so for the simple reason that "Not taken" policies are there unknown. As soon as the first premium on an accepted proposal has been *actually paid* to the account of the Company, and no sooner, a policy is written and forwarded to the applicant. Moreover, the cost of the business as measured by the proportion of the new premiums disbursed for "commission on new business" including agents' traveling expenses and salaries, may fairly be regarded as moderate, the ratios

ranging from about 35 per cent. in the case of the older and more conservative offices, to 80 per cent. or over in the case of some of the younger Companies. The average rate all round is not directly obtainable, as the available returns are not in all cases drawn up so as to afford the necessary information on this point.

The ratio of total expenses to "premium income" as derived from the aggregate returns for the year 1901 of all the Companies transacting ordinary business may be stated at 19.28 per cent., and the ratio to "total income" at 13.07 per cent. These ratios compare very favorably with those prevailing in America and Canada, and may even bear comparison with the rates shown by British companies when allowance is made for the widely different conditions under which business is necessarily carried on in Australasia. Table VI. shows the rate of expenses to "premium income" and to "total income" for each year since 1877, and also for quinquennial periods. The information has been compiled from the valuable annual summaries given in the Australasian Insurance and Banking Record.

As a direct consequence of the high rates of interest realized, the comparatively light rate of mortality experienced, and the moderate expense rate, a very considerable proportion of all the premiums paid has been returned to the assured in the form of cash bonuses (or their equivalent in the shape of reversionary additions to the policies). The average ratio for all companies during their whole existence, as shown by Table IV., is practically 25 per cent., a rate which compares exceedingly well with those prevailing in either British or American companies.

Rates of Interest.

Until within the last ten years or so the rates of interest realizable on sound securities in Australia ranged on an average in the vicinity of 6 per cent., and this fact formed a potent factor in producing the large bonuses which have been declared on participating policies by the principal Life Offices. Recent years have shown a considerable falling off in the rates obtainable, but the average is still fully 4½ per cent., a rate which compares very favorably with those ruling in England or America. Taking the figures of the various Companies as annually compiled by the Australasian Insurance and Banking Record, and averaging them in periods of five years, I have deduced the following results:

Years	Average rate
1877-81	5.97
1882-86	6.03
1887-91	5.92
1892-96	5.48
1897-1901	4.60

These rates are shown in detail for each year in Table VI.

As most of the Companies now value their policy liabilities at 3½ per cent., it will be seen that there is still a substantial margin to assist in providing bonuses in the future.

Channels of Investment.

Closely connected with the question of the rate of interest realized is that of the channels in which the accumulated Funds are from time to time invested.

Taking the latest Summary of the Balance Sheets as given in the Australasian Insurance and Banking Record, I find the Assets of the Companies there dealt with are distributed as in Table VII., where I have also shown their distribution as at a date seventeen years earlier in order to illustrate the changes which have taken place during that period.

The most striking point in connection with this table is the very large proportion of the Funds which is advanced by way of Loans on Policies, this being largely accounted for by the premiums which have been automatically advanced by the Companies on policies which have been allowed to run overdue, and which are not usually distinguished in the Balance Sheets from ordinary policy loans. The loans on "personal security," which are included along with loans on policies in the above summary, form only a very unimportant portion of the total item, and, as a matter of fact, this class of security is only cultivated to a small extent by one or two offices. The rates of interest charged on policy loans generally vary from 5 to 7 per cent., according to the amount of the loan and the conditions under which it is granted, and in the case of the automatic advances above referred to it is customary to charge a still higher rate.

The proportion of the assets invested in Mortgages has for a number of years past been steadily declining, while that invested in Government and Municipal securities has been increasing, owing, no doubt, to the increasing difficulty of finding suitable mortgages at sufficiently remunerative rates of interest. My earliest recollections of the rates charged for such transactions are to the effect that 6 per cent. was looked on as moderate, while 8 per cent. was not unknown; whereas nowadays, 4 to 4½ per cent. more nearly represents the prevailing rate of return.

"Shares" as an investment are here almost unknown, doubtless for the reason that the great commercial and industrial undertakings which abound in England and America are either non-existent in Australia or else are Government property. In these parts of the world, in fact, railways, tramways, docks, waterworks, wharves, etc., have in nearly every instance been constructed by the various Governments out of loan moneys raised in the usual way by the issue of Funded Stock or terminable debentures.

"Freehold and Leasehold property" and "Properties acquired by foreclosure," together account for about 10 per cent. of the total assets and form a larger proportion than in the case of the British Offices, many of the Companies having large and handsome buildings in all the main centres of population, which are to a considerable extent rent-producing. In this respect they rather imitate their American brethren than the more conservative British institutions.

"Cash on deposit and on current account with Banks," now forms a considerably less proportion of the assets than it did prior to the Bank failures in 1893. Before that time "fixed deposits" with Banks were largely availed of, more in the light of a permanent investment of a portion of the funds than as a merely temporary arrangement.

Transactions by way of loans on life interests, and loans on or purchases of reversionary interests are comparatively unknown in Australia, and only a very small amount has found its way into such securities, though they are largely availed of in Great Britain, where settled and entailed estates are numerous, while here they are rather the exception than the rule.

Legislation.

In Australia we have not so far had any experience of the blessings, or otherwise, of State Supervision after the American fashion. The various Acts passed from time to time with a view to the regulation of the business aim mainly at the securing of the British principles of "freedom and publicity," and have been more or less modeled after the British Act of 1870. Some of the more recent enactments contain provisions which, I venture to say, are in certain respects improvements upon the original model. Some of these Acts, moreover, are of an exceedingly comprehensive character, embracing within the scope of one enactment provisions relating to:

(1) The permission to carry on business and the filing of the necessary returns.

(2) Married women's policies.

(3) Protection against creditors.

(4) Assignments, whether by way of sale or mortgage or upon trust.

(5) Permission of payments in certain cases without probate or letters of administration.

(6) Surrender Values.

(7) Lost Policies.

(8) Transfers of policies from one State or Colony to another, etc.

Strange to relate, New South Wales, the mother colony of the Group, has not yet passed any Act regulating the business of Life Assurance, and, therefore, an Office which does not transact business outside its boundaries need not make any deposit prior to starting, nor is it compelled to file any statement of accounts or of "assets and liabilities." Every other member of the Australasian group has, however, laws of this character, and consequently all the Australian Life Offices of any importance make periodical returns to the various Governments.

At the Second International Congress of Actuaries, held in 1898, Mr. Richard Teece contributed a paper containing an epitome of the Life Assurance Legislation in Australasia as then existing, and another on "The Law with Respect to Life Insurance in New Zealand," was submitted from the pen of Mr. J. H. Richardson; but since that date various fresh enactments have been passed and several important legal decisions have been given which render it desirable that the information on this subject should be brought up to the present time. It is hardly possible in such a review to avoid repeating to some extent what Mr. Teece and Mr. Richardson have already so well said, but I shall endeavor to summarize the present condition of the law on the various points dealt with in the Acts of the different States. In doing so I must express my indebtedness to the valuable paper read before the Insurance Institute of New South Wales, in July, 1895, by Messers. W. R. Day, F.I.A., and A. C. Hollingworth, A.I.A., entitled "Some Notes on the British Life Assurance Companies' Act of 1870, the amendments which have been suggested in regard to it, and the various Colonial Acts which have been prepared on its lines"; as well as to Mr. A. Duckworth's excellent "synopsis of some leading provisions of Colonial Life Insurance Acts," drawn up in tabular form and published in the Australasian Insurance and Banking Record of September, 1900.

Conditions Under Which Business May Be Transacted.

In New South Wales, as already indicated, there are no such conditions at all, and any company or individual may commence and carry on the business of life assurance within its boundaries without let or hindrance. Such a state of things may well appear incredible to American readers, but it is none the less true. In Queensland until a very recent date there was no restriction on the starting of the business, although certain very meagre and insufficient annual returns were required to be lodged with the Government. Under the Life Assurance Companies' Act of 1902, however, this is now altered, and a deposit is required in the form of money or securities to the extent of £10,000. In Victoria and Tasmania the amount required is £5,000, and this is returnable when the life funds amount to £15,000. In New Zealand the initial deposit is £5,000, and an annual deposit is required in addition at the rate of 5 per cent. on each £100,000 assured until an amount of £50,000 has been reached. In South Australia the initial deposit required is also £5,000, with a further amount of 25 per cent. of the annual excess of receipts over disbursements in the Colony up to a maximum of £20,000. In West Australia the requirements are similar to the foregoing except that the initial amount is fixed at £10,000 in place of £5,000.

The periodical returns required by the several Governments are in the form of schedules mainly based on those contained in the well-known English Act of 1870, but in many respects the colonial schedules are fuller and more comprehensive than their English prototypes. As regards the annual revenue account, the principal alteration introduced in the Australian forms is a provision requiring the separation of the Premiums received into New Premiums and Renewal Premiums, and of "commission" into the amounts paid in respect of new business and of renewals respectively. In most of the colonies, moreover, the Balance Sheet is required to show the Assets under certain prescribed headings both "in the colony" and "elsewhere." New Zealand requires a Revenue Account and Balance Sheet both for the Company as a whole and for the local Branch, and moreover that the disbursements in the Revenue Account be shown in considerable detail specifying separately "Agents' Traveling expenses and salaries," "Salaries of other officers and employees," "Advertising," "Other expenses of Management," and "Taxes."

Coming next to the Valuation schedules which are required to be filed, as in England, after each periodical investigation, we find that the Fifth Schedule of the English Act has been somewhat amplified in most of the Australian Acts. In South Australia and West Australia information is required on the following points:

(a) Were the policies valued individually or in classes?

(b) If in classes, how was the valuation age determined?

(c) What portion, if any, of the year's premium was assumed to be due?

(d) Were lives assured at increased rates assumed to be of the age at entry corresponding to the premium charged? If not, how were they dealt with?

A question is also asked requiring specimens of the net premiums actually used in the valuation, this being inserted in order to elicit whether or not Companies make a strict net premium valuation in accordance with the Table of mortality and rate of interest adopted. In West

Australia a further inquiry is made as to the reserve made for future expenses and profits in the case of single and limited premium policies.

The sixth schedule of the English Act which requires certain particulars as to the policies valued, of which the most important is a statement of the amounts assured and corresponding annual premiums existing at each age under whole-life policies, has been adopted almost without alteration in Australia. The Victorian Act requires separate particulars and a separate valuation of the policies in force in Victoria, but in practice this provision has never been insisted on, and is practically a dead letter. The provision of the English Act requiring a statement of the "Total Premiums Received from the commencement" on all policies *other* than ordinary whole-life has been extended in the South Australian and West Australian Acts to include this class of policies as well as all other classes—a meaningless and absurd requirement which only results in useless labor being imposed on the companies. It may be here noted that in Queensland the necessary investigation is to be made by an actuary "approved by the Governor in Council," and in South Australia by an actuary approved by the Public Trustee.

The various Acts further require more or less full particulars regarding the policies issued each year under the headings of Assurances, Endowments, and Annuities ("Endowments" here meaning *pure Endowments,* not *Endowment-Assurances* as would generally be understood by the term in America). The latest Act, that of Queensland, goes a step further than the others, and requires the "Assurances" to be further divided into "Assurances" and "Endowment-Assurances." There is also required a statement of the policies discontinued during the year under each of the classes referred to, subdivided into those discontinued by reason of "death or maturity," "surrender," and "forfeiture." A return is also required showing the total business issued and total discontinued since the commencement of the Company, and the total existing at the end of the year under each class of business. New Zealand requires similar information to be given both for the Company as a whole and for its local branch. West Australia still further requires, in addition to most of the preceding information, a Statement of the business existing at the end of the year *in each colony,* as well as "elsewhere."

Protection of Policies from Creditors.

Provisions to this effect have been enacted in all the Australasian Colonies—not excepting New South Wales, which, although devoid of any legislation regulating the transaction of the business of life assurance, led the way in this important respect so far back as the year 1857 by the passing of the Australian Mutual Provident Society's Act, which was followed five years later by the "Life Assurance Encouragement Act," extending the principle to policies in any other life office. So far as I am aware, the only British possession which has followed suit in this respect is Cape Colony, where the Life Assurance Act of 1891 contains similar provisions to those contained in the Australian enactments. A very full account of the whole subject will be found in a valuable paper read by Mr. R. Teece, F.I.A., before the Insurance Institute of New South Wales, which appears in the "Sydney Record," the journal of that institute, for March, 1889, and a further excellent synopsis brought up to a somewhat later date, is contained in a contribution by Mr. A. C. Hollingworth, A.I.A., to the Transactions of the same institute, which appears in the "Sydney Record" for May, 1895. I anticipate that a contribution deal-

ing with the same subject will be submitted to the present Congress, and, therefore, I shall not now enter upon a full discussion of the diverse provisions of the different Acts or the many controverted points which have from time to time arisen in regard to their interpretation, further than to say that the general principle of protection of life policies against the claims of creditors in favor of the assured and his personal representatives has now stood the test of time for forty-five years, and has by the latest enactments been rather extended than curtailed, thus seeming to prove that its working has, on the whole, been beneficial to the best interests both of the companies and of the assuring public. The interests of creditors seem, in general, to be sufficiently conserved, and I do not think it can truly be alleged that any real hardship has often been caused them by reason of the provisions in question. The latest Act bearing on this point is that of Queensland, dated December 31, 1901, which provides that any policy effected by a person on his own life shall be protected against the claims of creditors without any limitation as to the amount or duration of the policy, *except* that in case of the assured's death within three years, a sum equal to the premiums he has paid with interest at 5 per cent., shall be available toward payment of his debts. This would seem to do substantial justice to all parties, but the section is not too clear as to the case of moneys becoming payable during the assured's own lifetime by virtue of the maturity of an Endowment-Assurance policy. A question may also possibly arise as to whether or not the proceeds of the surrender of a policy, or a loan on its security are protected in favor of the assured himself against his creditors. It was generally considered by Life officials that once the loan or the surrender value was paid to the assured, it became part and parcel of his general estate, and was, therefore, no longer protected, but a recent decision of the Supreme Court of New South Wales, in re Alfred Thompson, has upset this idea, the judge holding that the policy and its proceeds were protected in favor of the assured himself during his lifetime as well as of his personal representatives after his death. In this case an appeal has just been heard before the full court, which has reserved judgment thereon. On this point it is instructive to note that the law of Cape Colony expressly provides that the proceeds of the cash surrender of a policy shall *not* be protected against the creditors of the assured.

Married Women's Policies.

In this respect the various colonies have, in the main, closely followed the provisions of the English Married Women's Property Acts, and have enacted, either by a separate act or as a part of a general measure dealing with Life Assurance Companies, that a policy effected by a Married Woman "for her separate use" shall be free from the debts and control of her husband. As all policies, however, are protected from creditors to a greater or less extent, even without being specially issued in the name of a wife, the provisions of the Married Women's Property Acts are not generally availed of to any extent, the same object being in reality just as effectually and more simply attained by the issue of a policy which is made payable in the ordinary way to the "executors, administrators, or assigns" of the assured.

The Law Relating to Assignments of Life Policies.

In all the Australasian colonies, except New South Wales, special provisions have been enacted in regard to the manner in which Life Poli-

cies may be validly assigned; the main object aimed at being to relieve the Companies as far as possible from any necessity to investigate titles by laying down a prescribed form in which an assignment is to be made in the shape of an indorsement on the policy in schedule form, and by declaring that once the assignment according to this form has been duly completed by registration in the books of the company the title is thereupon vested in the assignee and that the Company is not bound to make any further inquiry as to title in case of future dealings with the policy. In Victoria and Queensland it is stated that every assignment *shall* be in the form of the prescribed schedule, while in South Australia, West Australia, and Tasmania, they *may* be in such form. Practically, however, in all these colonies, the prescribed form is treated as compulsory, and upon its completion the Company is absolved from any liability to inquire whether the assignee is really the owner or only a mortgagee of the policy, or perhaps a trustee for others. It is true, that provision is also made for the execution of a separate instrument, if so desired by the parties, constituting a mortgage or a trust as the case may be, but the Insurance Company is not to be in any way concerned therewith.

The law of New Zealand in regard to assignments appears to be much preferable in several respects to those in force in the other colonies, as it provides not only a form of absolute transfer similar to that already indicated, but also a special form of mortgage of a policy in which certain covenants are implied and which have the same force as if actually embodied in the mortgage. Mortgages are registered by the Company indorsing a statutory memorandum on the policy and on the mortgage, a certified copy of which latter is retained in the office. A form consisting of about three lines is further provided by means of which a mortgage may be discharged either in whole or in part. Any person who becomes entitled to a policy by operation of law may have his title thereto registered and admitted on his producing the necessary evidence to establish his rights.

Assignments or mortgages are not to be valid in any of the colonies until properly registered; and in New Zealand provision is made, in the event of a Company refusing to register such, that the matter may be brought before a Judge of the Supreme Court for decision.

The tendency of the whole of this legislation appears to be to make life policies too easily transferable and thus possibly to benefit unscrupulous money-lenders at the expense of too-confiding policy-holders, for the lender invariably takes an absolute assignment of the policy to himself, and only in very rare cases is there any separate instrument defining the true nature of the transaction. Moreover, in the case of an assignment *on trust,* the Company is probably in entire ignorance of the fact that the Assignees are acting in a fiduciary capacity, and it has, therefore, no means of preventing any misappropriation of the proceeds of the policy. True, the law expressly exempts the Company from any liability in such a case, but nevertheless my own feeling is that they would be hardly safe in paying, without inquiry, to an assignee in the face of any suspicion, or it may be in defiance of an actual notice, to the effect that he was in reality either a mortgagee or a trustee in place of a bona fide owner. Moreover, questions may arise as to the right of a registered assignee to transfer the policy absolutely to some one else, at least until he shall have shown that he is *de facto* the sole and absolute owner. The Act until recently in force in Victoria, the wording of which is closely followed by those of South Australia, West Australia, and Tasmania, provided that an assignee on being duly registered might sue in his own

name on the policy assigned, and that his receipt should be a valid discharge for all moneys payable thereunder, but it did *not* state that he was to have in all respects the same rights as the original holder, and doubts came to be expressed as to whether such an assignee could absolutely transfer the policy without first satisfying the Company that he had really the right to do so. With the view of remedying this difficulty an amending Act was passed in the year 1900, which provides that the statutory memorandum of transfer shall, as between the Company and any claimant to the policy, be conclusive evidence for all purposes that the transferee was the absolute owner of the policy and legally entitled to receive and give discharges for the policy moneys, and any dealings with it by him shall be valid notwithstanding the existence of any trust, right, equity, or interest in favor of any other person, and the Company is not bound or concerned to inquire into his title or to see to the application by him of the proceeds.

The next section of the Act, however, goes on to say that *nevertheless* a Company is not entitled to protection under the foregoing provisions if it has received express written notice of the existence of any trust, right, equity, or interest in favor of any other claimant, and that in such case it may pay the amount in dispute into court.

The Queensland Act, which is the latest in point of date, follows in some points the Victorian Act just referred to, but it makes provision in the Memorandum of Transfer for stating if the assignment is by way of Mortgage or upon Trust, and it is provided that, when the policy is assigned by way of mortgage only, both the transferee and the transferror must join in suing on the policy.

This Act also embodies some extraordinary and unique provisions as to "Indefeasible Policies," such a policy being defined as one which "upon the face thereof and in accordance with a recited contract between the Company and the assured states that neither it nor any bonus additions nor other accretions thereto nor any interest therein, shall in any way during the currency thereof, be capable of being assigned, sold, encumbered, surrendered, disposed of, or in any way diminished or impaired." There is, of course, nothing to prevent the holder of such a policy allowing the premiums to run overdue and thus defeating the express object of the provision whenever he likes, and it is difficult to conceive of any intelligent person deliberately entering into such an absurd contract.

Lost Policies.

As all these Acts required the statutory form of assignment to be indorsed on the policy itself, it was not long before the question arose as to how this was to be done when the policy had been lost, mislaid, or destroyed, and hence provisions have been enacted with the view of overcoming this difficulty by the issue of a "certified copy" of the policy which is to take for all purposes the place of the original. In one or two of the colonies the new document is styled a "special policy" instead of a "certified copy," but the effect is in reality the same. Provision is made before any such document is issued for the insertion at the applicant's cost of certain advertisments as to the loss of the policy and the Company's intention to issue a special policy or a certified copy as the case may be.

Transfers of Policies from One Colony to Another.

The laws of the various colonies being different from each other in many respects, such as in regard to the extent of protection against

creditors and in regard to the necessity or otherwise of using a prescribed form of assignment, as well as in other particulars, it became necessary to lay down certain provisions as to the transfers of policies from one colony to another. These provisions, generally speaking, are to the effect that a policy may be transferred at the wish of the holder from the "register" of the Company in one colony to the "register" in a different colony, and that thereupon it ceases to be subject to the law of the former place and becomes subject to that of the latter. It is generally held that the regular payment of the premiums on the policy to a branch or agency of the Company in any particular colony constitutes being on that register and makes the policy subject to the law of that colony although it may have been originally issued in another; but knotty questions are continually arising in regard to these enactments, and particularly as to whether for purposes of probate duty a policy is to be regarded as *bona notabilia* in the colony where it was originally issued; in that where the Head Office of the issuing Company is situated; or in that to which it may have been transferred; or, finally, in that where the assured may have been domiciled at the date of his decease. Legal decisions are conflicting, and the whole question is involved in a considerable degree of uncertainty.

Payment of Small Claims Without Probate or Administration.

In all the colonies, except New South Wales, legislative permission is given to the Companies to pay, if they think fit, small claims up to a maximum varying from £100 to £300 to the person or persons seeming to be entitled thereto without requiring the production of Probate or Letters of Administration. Personally, I am of opinion that the power thus given should only be exercised in the clearest cases and those in which no conflicting interests are at all likely to arise.

Surrender Values and Non-Forfeiture Provisions.

The New Zealand Act provides that no policy shall become void by non-payment of premiums so long as the premium and interest in arrear are not in excess of the surrender value as declared by the Company issuing the same in the answer of such Company with reference to this point in its periodical Valuation returns to the Government. The South Australian and Queensland Acts contain an exactly similar provision, but in none of these is there any limit specified to the rate at which interest on overdue premiums may be charged by the Company issuing the policy.

Provisions re Misstatement of Age.

In the Queensland Act of 1879, which is now, however, repealed by that of 1901, there existed an extraordinary and most inequitable provision to the effect that wherever a policy had existed for three years the age of the assured should, except in the case of a fraud, be deemed to have been admitted by the Company issuing the policy. In the last Victorian Act, as well as in the new Queensland Act, it is enacted that if the age has been erroneously stated in the proposal the Company may, if it has been understated, *either* proportionately reduce the amount assured *or* accept payment of the arrears with 5 per cent. compound interest. If it has been overstated, either the amount of the policy is to be proportionately increased or the amount overpaid is to be returned to the

assured without interest. The Queensland Act goes on to say that wherever any policy issued after the passing of the Act has endured for at least three years the burden of proof that the age of the assured was not correctly stated shall rest upon the Company.

Taxation of Life Offices.

For many years Australian Life Offices were almost entirely free from the burden of taxation, and I venture to think justly so, for I cannot but regard any taxes levied upon such institutions as discouragements to thrift in its most desirable form. The necessities of the various Governments, however, after a time began to prevail over all other considerations, and one after another the several colonies have adopted methods of obtaining revenue from the Companies; and the process is still going on, so that in course of time the burden may possibly become as heavy as it now is in America. In New South Wales, by the Land and Income Tax Assessment Act of 1895, a land tax is imposed at the rate of one penny in the pound upon the "unimproved value" of all land belonging to any individual or Company in the colony, the "unimproved value" in question being defined to be the capital value of the bare land irrespective of the value of any buildings or improvements erected upon it. Life Companies have, therefore, to pay this tax in respect of the sites of their office premises as well as on the value of the land embraced in any foreclosed mortgages. Further, by the same Act Life Companies have to pay income tax, at a rate amounting at present to six pence in the pound, on their income derived from interest on mortgages less the expenses incurred in producing their income.

Victoria until quite recently exempted Life Assurance Companies entirely from all taxation, but by an Act just passed an income tax is imposed on such Companies at the rate of one shilling in the pound, the taxable income for this purpose being taken to be 30 per cent. of the premiums received on policies effected in Victoria. The net result of this somewhat artificial method of charging the tax is an imposition of 1½ per cent. on the premium revenue of the Companies. In Queensland by the Dividend Tax Act of 1890, a tax is imposed on the dividends of all trading Companies, but in the case of Life Assurance Offices the charge is calculated upon their Premium Receipts, the rate being 1 per cent. In Tasmania a Property Tax at the rate of ½*d.* in the pound is chargeable on the entire market value of real property owned by the Companies, and an Income tax which amounts to 1 per cent. of the Premium receipts in the Colony. In New Zealand an Income tax is levied at the rate of one shilling in the pound on the interest income of the Companies other than that from interest on mortgages, as well as a Property tax on the *principal* secured by mortgages and on the capital value of real property owned, at the rate of three farthings in the pound. In addition to this, there is a graduated land tax, imposed with the express object of "bursting up large estates," which varies from one-eighth of a penny in the pound on land not exceeding £5,000 in value to 2*d.* in the pound on land exceeding £210,000 in value. In South Australia the "income of all Companies, Public Bodies, and Societies not carrying on any business for the purpose of gain to be divided among the shareholders or members thereof," is exempt from income tax; but mutual Life Offices are not held to come within this exemption, although I think it may fairly be contended that they should be covered by the exemption clause just quoted. Possibly, however, the fact of a Mutual Life Office transacting a

non-participating business, no matter how small in amount, might be held to take it outside the scope of the exemption. The rate of tax imposed by the Act of 1884 was 3*d.* in the pound on income derived from personal exertion, and 6*d.* in the pound on income the produce of property. By an Act passed in 1887 the income of a "Company" was declared to be chargeable as being the "produce of property"; and by another Act, passed in 1894, the rates were altered as follows: On income derived from "personal exertion" for the first £800 of income, 4½*d.* in the pound, and 9*d.* on the excess over that amount; on income the "produce of property" 6*d.* and 1*s.* respectively. In the year 1900 these rates were increased to 9*d.* and 1*s.* 1½*d.* For the purposes of the Act, the "income" of a Life Company is taken to be the amount of cash profit allocated to its policies in South Australia. By the Act of 1884 a Land Tax was also imposed at the rate of ½*d.* in the pound on the unimproved value of all land owned, and in 1894 an extra ½*d.* was levied on the unimproved value in excess of £5,000. Further, by an Act just passed, a License fee is exacted at the rate of 10*s.* per cent. (i.e., one-half of one per cent.) on the Premium Receipts of the Companies.

In Tasmania, since the year 1886, a property tax has been charged at the rate of ½*d.* in the pound on the entire capital value of land and premises owned, and by a recent Act an Income tax is also levied at the rate of 1*s.* in the pound on 20 per cent. of the Premiums received (i.e., 1 per cent. on the Premiums).

West Australia is now the only colony of the group which has not yet harassed the Companies with these vexatious imposts, the only charge there made being a small amount by way of License fee. Several of the other colonies have also comparatively trifling charges of a similar nature in addition to the Land and Income taxes above described.

These various taxes threaten before long to constitute a pretty heavy addition to the expenditure of the Companies.

Points of Practice.

Non-Forfeiture Regulations.—In Australia the practice of keeping policies in force out of their surrender value when the premiums have been allowed, either accidentally or otherwise, to become overdue, has now been adopted for the last thirty years. It may, in fact, be truly claimed that in this respect the Australian Offices showed the way to their English brethren. The plan generally adopted by the leading Companies is that after a policy has been in existence long enough to have acquired a surrender value, usually after the payment of two years' premiums, if it subsequently becomes overdue the premium is automatically advanced by the Company, an account being opened for the policy in its "Overdue Premium Ledger." So long as the premiums, or any portion of them, remain overdue, this account is kept open and the premiums as they fall due are debited to it. It is also debited periodically with interest on the amount of the debt, including in the said amount the interest which has already accrued. The rate of interest is generally somewhat in excess of that charged for an ordinary loan on policy, and is sometimes as high as 8 per cent. or possibly more. Bonuses continue to be allotted to the policy as if it were in full force, and it is in fact so treated in all the books and in the Valuation Returns, the amount of the debt against it appearing as an asset either under a separate heading or included with "Loans on policies within their Surrender Value." Each premium advanced, as well as each allocation of Bonus, increases the Surrender Value

of the policy, and a fresh calculation of the value is made from time to time in order to determine whether the accumulated debt has reached that amount. When it does so the policy is finally written off the books, unless the policy-holder is able to make some payment in reduction of his indebtedness. Of course he is at liberty to pay one or more premiums at any time during the currency of the Overdue Premium Account, and if at any time he clears off the whole debt the account is closed. These provisions are very largely availed of by the assured, and have no doubt been instrumental in saving many policies from the forfeiture which they would otherwise have incurred either through the wilful neglect or the accidental omission of the policy-holder to pay the premium when due.

Methods of Valuation.—As a general rule, the H^m Table of the Institute of Actuaries, is used in valuing the policy liabilities, and in most instances this is now combined with interest at 3½ per cent. This rate will probably soon be universally adopted. The valuations are not, however, in all cases on a strictly pure premium basis, one or two companies still adopting the method of valuing a portion of the loading as an asset.

Two of the larger companies make an annual valuation and distribution of profits, the others valuing at triennial or quinquennial intervals.

Divisions of Surplus.—The method adopted by the leading Australian Companies is generally a modification of the well-known "Contribution" method, although one or two Offices still adhere to the old plan of allotting either a "Simple" or a "Compound Reversionary Bonus." The largest Australian Company adopts the following method, and most of the others follow a somewhat similar plan. It first allots to each policy, in proportion to its value at the next preceding investigation, the surplus derived from the reserves having been accumulated during the valuation period at a rate of interest in excess of that calculated upon in the investigation, and then the whole remaining profit is allotted to each policy in proportion to the *loading on the premiums paid* during the period, some deduction being made in practice from the profit which would thus accrue to policies of very recent date as a set-off against the expense incurred in obtaining them. The cash bonus to which each policy is entitled being thus found, it is then converted into the equivalent reversion payable along with the sum assured, and the result announced to the individual members in that form.

The amounts of Bonuses which have accrued in the past, and in spite of falling rates of interest, still continue to accrue, are remarkable, and bear high testimony to the skill and prudence with which the business has all along been conducted.

Tontine Policies.—Several Offices have inaugurated so-called Tontine plans of assurance; but the system does not seem to have taken any very deep root, and some of the larger Companies have steadily discountenanced it. "Estimates," as understood in America, are not very generally used, though no doubt business is often got by the exhibition of actual past results—results which, for reasons already stated, are hardly likely to be quite realized in the future.

Extra Premiums.—As regards extra premiums for occupation or for residence these are almost entirely unknown, residence in any part of Australasia being generally permitted free, and almost all occupations being considered eligible at ordinary rates with the exception of persons engaged in the retail liquor traffic.

The practice of rating-up lives believed to be under the average as

regards their prospects of longevity is, however, freely carried out. The more usual plan is by the addition to the real age of a number of years, varying from two or three up to ten or more, and I am not aware that the American practice of offering a short-term Endowment-Assurance to an impaired life is followed here to any appreciable extent. The Contingent-debt plan, which is, I believe, now largely coming into vogue both in the United States and in Canada, is also practised by several of the Australian Companies, either instead of the older method of making an addition to the true age or as an alternative which may be offered to an intending assurer whose life is found to be below the average.

Conditions of Policies.—The numerous harassing restrictions which were at one time to be found in the contracts issued by the various Companies have one by one been swept away, and at the present day the policies usually written practically contain no condition except that providing for the payment of the premium, even this being subject to the express proviso (which is elsewhere more fully referred to) that after an existence of from two to three years the non-payment of the premium when due shall not avoid the contract so long as the surrender value is sufficient to cover it. Some Companies still retain a Suicide clause, but its operation is generally limited to the first one or two years after the issue of the policy, and in its most approved form it entirely safeguards the interests of bona fide assignees.

Loans and Surrender Values.—Loans on the security of policies are freely granted, generally up to about 90 per cent. of their Surrender value; and Surrenders are allowed on liberal terms, usually after an endurance of about two years; but it has not hitherto been usual to embody in the policy contract itself any guaranteed quotations of Loan values or Surrender values as is done by some of the companies in America.

Days of Grace.—Most, if not all, Offices allow days of grace, usually either thirty days or one calendar month, for payment of the premium, with privilege of reinstatement on proof of continued good health at any time during the following twelve months. In such cases a fine is generally charged in addition to the overdue premiums; but if the policy has been in force long enough to have acquired a surrender value, the premium, as already explained in a former paragraph, is automatically advanced as a charge against the value of the policy, and no proof of health is required, so long at least as the debt does not exceed this value.

Non-Forfeiture Schemes.—By this expression is commonly understood the plan of allowing in case of "limited-payment life" policies and sometimes also in case of endowment-assurances, a paid-up policy in lieu of a surrender value for as many proportionate parts of the sum assured as there have been complete annual premiums paid. In Australia, so far as I am aware, such schemes are not availed of to any great extent, although several companies state this plan in their prospectuses.

Conclusion.

I have now endeavored to sum up, to the best of my ability, the past history and the present condition of Life Assurance in Australasia, and have, I trust, succeeded in showing that in proportionate extent of business, liberality of practice, and general excellence of results, the Australian Offices as a whole are not excelled by those of any other English-speaking community.

TABLE I.

Australasian Life Assurance Offices.

Name	Date of Establishment.	Locality of Head Office.	Mutual or Proprietary.	Nature of Business.	Remarks.
Australian Mutual Provident Society	1849	Sydney	Mutual	Ordinary	
Victoria Life & General Insurance Company	1859	Melbourne	Proprietary	"	Full particulars of business not available.
Australian Alliance Assurance Company	1862	Melbourne	"	Ordinary Life, also Fire and Marine	Full particulars of business not available.
Adelaide Life Assurance & Guarantee Company	1866	Adelaide	"	Ordinary	Full particulars of business not available.
Australasian Insurance Company	....	Melbourne	"	Ordinary Life, also Fire and Marine	Full particulars of business not available.
Mutual Life Association of Australasia	1869	Sydney	Mutual	Ordinary	
National Mutual Life Association of Australasia (Lt'd)	1869	Melbourne	"	"	
Mutual Assurance Society of Victoria (Lt'd)	1870	Melbourne	"	"	Transferred to National Mutual in 1896.
New Zealand Government Life Assurance Dep'tment.	1870	Wellington	"	"	
Australian Widows' Fund Life Assurance Society (Lt'd)	1871	Melbourne	"	"	
Colonial Mutual Life Assurance Society (Lt'd)	1874	Melbourne	"	"	
Australasian Temperance & General Mutual Life Assurance Society (Lt'd)	1876	Melbourne	"	Ordinary and Industrial	
City Mutual Life Assurance Society (Lt'd)	1879	Sydney	"	Ordinary	
South Australian Mutual Life Assurance Society	1881	Adelaide	"	"	Transferred to Aust. Temperance & General in 1899.
Citizens Life Assurance Company (Lt'd)	1886	Sydney	Proprietary	Ordinary and Industrial	Commenced Ordinary Business in 1888.
Provident & Industrial Insurance Company of New Zealand	1889	Dunedin	"	Industrial	
Australian Metropolitan Life Assurance Comp'y (Lt'd)	1895	Sydney	"	Ordinary and Industrial	Separate particulars of ordinary business not available.
The Standard Life Association (Lt'd)	1899	Sydney	"	Ordinary and Industrial	No Valuation Report yet issued.

TABLE II.

Australasian Life Assurance.

Year	No. of Companies	New Business (Assurance and Endowment)	Premiums Received	Consideration for Annuities	Life Assurance and Annuity Funds
1849	1	£10,100	£197	£61	£96
1850	1	15,115	589	53	558
1851	1	25,050	1,287	345	1,789
1852	1	33,670	2,095	334	3,128
1853	1	35,080	2,916	1,914	6,583
1854	1	43,975	4,066	508	7,785
1855	1	98,250	62,57	664	10,076
1856	1	140,860	10,437	431	16,914
1857	1	133,845	13,935	496	28,176
1858	1	146,050	17,320	472	41,601
1859	1	203,650	22,858	603	57,143
1860	1	248,925	28,029	755	77,277
1861	1	285,275	37,374	3,123	107,807
1862	1	370,770	48,982	590	145,598
1863	1	471,589	61,613	1,345	198,615
1864	1	598,573	80,002	3,070	243,369
1865	1	476,622	92,877	1,359	309,922
1866	1	504,735	102,747	4,269	389,191
1867	1	514,507	114,632	1,638	476,430
1868	1	572,809	140,163	4,064	602,085
1869	1	761,622	147,419	1,803	678,954
1870	4	898,406	179,762	3,486	809,195
1871	5	1,243,317	207,275	4,421	964,180
1872	6	1,591,599	243,398	6,970	1,157,771
1873	6	1,946,946	298,145	7,471	1,382,831
1874	6	2,152,619	346,811	4,752	1,653,561
1875	7	2,842,315	417,120	11,917	1,896,479
1876	7	3,216,646	500,555	7,630	2,245,421
1877	7	3,965,100	600,537	14,524	2,690,658
1878	8	4,606,832	700,902	2,022	3,206,819
1879	8	4,938,378	805,277	4,605	3,716,525
1880	9	5,494,135	909,504	5,886	4,402,474
1881	9	5,907,655	1,033,358	9,854	5,139,087
1882	9	7,779,720	1,256,205	22,835	6,047,649
1883	10	8,086,307	1,358,476	10,325	7,078,054
1884	10	8,561,873	1,499,068	8,524	7,998,685
1885	10	10,210,281	1,707,891	16,555	9,104,284
1886	10	9,486,427	1,869,274	10,573	10,325,593
1887	10	10,155,210	2,122,868	19,285	11,736,898
1888	11	8,997,641	2,093,395	33,053	13,063,327
1889	10	9,685,848	2,270,026	19,643	14,566,816
1890	10	9,630,259	2,342,954	23,402	16,078,397
1891	10	9,263,940	2,448,085	42,394	17,633,267
1892	10	8,197,845	2,517,833	28,780	19,091,025
1893	10	6,753,580	2,522,764	34,408	20,377,912
1894	10	6,789,357	2,514,987	26,979	21,441,299
1895	10	6,993,853	2,542,961	51,939	22,679,135
1896	10	7,499,653	2,585,970	65,086	23,820,927
1897	9	7,587,700	2,632,734	61,355	25,018,347
1898	9	9,193,602	2,787,313	68,380	26,243,065
1899	9	9,747,648	2,927,323	82,671	27,854,472
1900	9	9,767,226	3,060,919	92,134	29,450,806
1901	9	9,630,329	3,188,902	122,938	31,033,321

TABLE III.

Australasian Life Assurance.

Last Published Returns for Period ending	Number of companies	Business in Force												Assurance		Endowment-Assurance	
		Assurance				Endowment-Assurance				Endowment		Annuity					
		Number of policies	* Amount assured £	Annual premiums £	Bonuses £	Number of policies	* Amount assured £	Annual premiums £	Bonuses £	Number of policies	Amount assured £	Number of policies	Annuity p. a. £	Average amt. assured per policy £	Average ann. premium % on amt. assured	Average amt. assured per policy £	Average ann. premium % on amt. assured
Feby. 1854.....	1	243	101,775	3,118	.....	.....	.....	.....	.....	16	1,780	14	586	419	3.06	.....	.....
" 1859.....	1	1,115	591,235	19,120	2,556	32	13,150	602	.....	62	8,150	20	918	530	3.23	411	4.58
" 1864.....	1	3,266	1,782,389	59,583	81,950	459	174,650	7,317	1,532	578	91,710	35	1,835	546	3.34	381	4.19
" 1869.....	1	6,127	3,148,889	105,877	89,835	1,550	546,950	22,295	7,263	1,105	169,875	106	3,357	514	3.36	353	4.08
Dec. 1873.....	1	11,392	5,279,154	176,887	165,305	4,643	1,506,377	61,168	18,184	1,348	192,264	128	4,487	464	3.35	324	4.06
" 1878.....	6	31,443	12,749,592	401,050	419,296	14,347	4,248,305	172,127	60,480	1,820	261,066	162	9,081	405	3.15	296	4.05
" 1883.....	8	63,634	23,753,151	724,879	919,487	38,248	10,037,362	400,001	183,129	2,928	430,043	214	13,478	373	3.05	262	3.99
" 1888.....	10	102,424	36,029,305	1,090,069	2,922,447	78,187	18,285,735	725,852	826,739	5,160	741,099	283	17,540	352	3.03	234	3.97
" 1893.....	10	138,203	49,381,630	1,443,838	5,822,863	124,691	26,981,360	1,050,287	2,055,498	7,322	1,050,684	476	30,527	357	2.92	216	3.89
" 1898.....	10	157,079	53,668,211	1,540,970	7,357,336	164,211	33,122,014	1,269,841	2,902,690	11,354	1,542,993	868	49,320	342	2.87	202	3.83
" 1901.....	9	163,629	56,725,759	1,598,340	7,853,459	197,201	39,114,645	1,482,418	3,057,093	16,985	2,194,987	1,234	69,775	347	2.82	198	3.79

*In certain cases a small proportion of the Bonuses has been included with the amount assured—the separate particulars not being available.

TABLE IV.

Australasian Life Assurance.

Period ending	No. of companies	Premiums Received excluding Consideration for Annuities	Cash Bonuses declared	Percentage of Cash Bonuses on Premiums Received
Feb., 1854.....	1	£4,662	£1,290	27.6
" 1859.....	1	61,107	13,900	22.7
" 1864.....	1	231,328	64,082	27.7
" 1869.....	1	518,089	97,333	18.8
Dec., 1873.....	1	929,245	235,185	25.3
" 1878.....	6	2,097,350	517,481	24.7
" 1883.....	8	4,308,523	1,194,578	27.7
" 1888.....	10	5,766,812	1,277,396	22.2
" 1893.....	10	13,272,351	3,621,766	27.3
" 1898.....	10	13,955,257	3,396,427	24.3
" 1901.....	9	10,263,999	2,474,555	24.1
Totals.....	..	51,408,723	12,893,993	25.1

TABLE V.

Australasian Life Assurance—Totals of Assurances and Endowment-Assurances.

Last Published Returns forperiod ending	No. of Companies	No. of Policies	Amount Assured	Bonuses	Total Amount Assured and Bonuses	Annual Premiums	Average Amount Assured per Policy	Average Annual Premium % on Amount Assured
February, 1854.....	1	243	£101,775	£.....	£101,775	£3,118	£419	£3.06
" 1859.....	1	1,147	604,385	2,556	606,941	19,722	527	3.26
" 1864.....	1	3,725	1,957,039	83,482	2,040,521	66,900	525	3.42
" 1869.....	1	7,677	3,695,839	97,098	3,792,937	128,172	481	3.47
December, 1873.....	1	16,035	6,785,531	183,489	6,969,020	238,055	423	3.51
" 1878.....	6	45,790	16,997,897	479,776	17,477,673	573,177	371	3.37
" 1883.....	8	101,882	33,790,513	1,102,616	34,893,129	1,124,880	332	3.33
" 1888.....	10	180,611	54,315,040	3,749,186	58,064,226	1,815,921	301	3.34
" 1893.....	10	262,894	76,362,990	7,878,361	84,241,351	2,494,125	290	3.27
" 1898.....	10	321,290	86,790,225	10,260,026	97,050,251	2,810,811	270	3.24
" 1901.....	9	360,830	95,840,404	10,910,552	106,750,956	3,080,758	266	3.21

TABLE VI.

Australasian Life Assurance—Rates of Interest and Expenses.

Year	Rate of Interest on Funds	Rate of Expenses: On Premium Income	On Total Income
1877	5.58	20.09	16.10
1878	5.70	19.91	15.93
1879	5.87	20.67	16.53
1880	6.39	23.24	18.02
1881	6.29	20.52	15.95
Quin. average	5.97	20.89	16.51
1882	6.07	21.42	16.69
1883	5.89	22.94	17.91
1884	6.10	22.78	17.38
1885	6.01	24.35	18.44
1886	6.06	23.44	17.83
Quin. average	6.03	22.99	17.65
1887	5.98	23.91	17.91
1888	5.91	22.27	16.07
1889	5.95	21.80	15.51
1890	5.81	21.89	15.31
1891	5.96	21.28	14.95
Quin. average	5.92	22.23	15.95
1892	5.80	21.05	14.59
1893	5.66	20.15	13.97
1894	5.44	20.00	13.72
1895	5.35	19.52	13.28
1896	5.15	19.23	12.99
Quin. average	5.48	19.99	13.71
1897	4.77	19.49	13.21
1898	4.73	19.68	13.42
1899	4.58	20.36	13.96
1900	4.47	19.62	13.44
1901	4.46	19.28	13.07
Quin. average	4.60	19.69	13.42

TABLE VII.

Australasian Life Assurance—Total Assets.

Description of Assets	1884 Amount £	1884 Percentage of Total	1901 Amount £	1901 Percentage of Total
Mortgages	4,671,617	55.7	15,099,273	47.1
Loans on policies and on personal security	889,758	10.6	5,784,339	18.0
Loans on rates, reversionary interests, etc.	.....	....	1,324,072	4.1
Government and municipal securities and debentures	1,030,346	12.3	4,851,991	15.2
Shares	76,724	.9	67,645	.2
Cash in hand on account current, and deposit	930,473	11.1	931,327	2.9
Freehold and leasehold property	481,991	5.7	2,315,560	7.2
Properties acquired by foreclosure or in possession	.....	....	903,363	2.8
Outstanding premiums	157,192	1.9	406,979	1.3
Outstanding and accrued interest	79,824	.9	313,805	1.0
Agents' balances	24,540	.3	.....	....
Sundries	50,423	.6	57,122	.2
Totals	8,392,888	100.0	32,055,476	100.0

RÉSUMÉ.

ASSURANCE SUR LA VIE EN AUSTRALIE.

PAR DAVID CARMENT.

L'auteur commence par donner dans son article quelques statistiques sur l'étendue et la population des différents États Australiens, accompagnées de quelques notes sur leurs climats et le taux prévalent de la mortalité. Il raconte ensuite la naissance et le progrès des compagnies d'assurances sur la vie depuis l'année 1849 jusqu'à la fin de 1901. Après quoi il décrit les méthodes employées pour les affaires et donne les rapports entre les dépenses et le revenu dû aux primes et entre les dépenses et le revenu total. L'auteur aborde alors les taux d'intérêts et les moyens de placements, puis le sujet de législation qu'il accompagne d'un court sommaire des diverses lois, en force dans les divers États, qui ont trait à l'assurance sur la vie et au contrôle des compagnies d'assurance sur la vie. L'auteur conclut en décrivant les mesures qui ont trait à l'imposition des compagnies d'assurance sur la vie et en détaillant divers points de la pratique appliquée par les compagnies australiennes.

Des tables qui accompagnent l'article donnent les renseignements suivants:

1. Une liste des compagnies dans l'ordre chronologique de leur fondation.
2. Les nouvelles affaires faites chaque année, les primes reçues, le taux des rentes viagères et les fonds à la fin de l'année.
3. Les affaires en force à la fin de chaque période quinquennale divisées en assurances, assurances à termes; dotations et rentes viagères; ainsi que les sommes moyennes assurées par police et la prime moyenne pour cent.
4. Les primes reçues et les derniers bonus répartis dans chaque période quinquennale.
5. Les totaux d'assurances et d'assurances à terme prises ensemble, ainsi que les bonus de survivance en force.
6. Taux d'intérêts et de dépenses.
7. Placements dans chaque classe de garanties en 1884 et 1901.

KURZE NOTIZ.

LEBENSVERSICHERUNG IN AUSTRALIEN.

VON DAVID CARMENT.

In diesem Berichte macht der Verfasser zuerst einige statistische Bemerkungen über den Flächeninhalt und die Bevölkerung der einzelnen Staaten Australiens mit kurzer Berücksichtigung des Klimas und der vorherrschenden Todesrate. Dann wird der Beginn und die Ausbreitung des Lebensversicherungs-Geschäfts von 1849 bis zum Ende 1901 verfolgt; weiter die im Gebrauch befindlichen Geschäfts-Methoden beschrieben und das Verhältnis der Ausgaben zum Einkommen aus den Prämien und zum Total-Einkommen festgesetzt. Dann werden zunächst die Zinsraten und die verschiedenen Wege der Kapitals-Anlage besprochen. Darauf nimmt der Verfasser den Gegenstand der Gesetzgebung auf und giebt eine kurze Uebersicht der verschiedenen Parlaments-Vorschriften in Kraft in den verschiedenen Staaten in Hinsicht auf Lebensversicherungs-Policen und die Controlle von Lebensversicherungs-Gesellschaften. Maassnahmen bezüglich Taxierung von Lebensversicherungs-Geschäften werden beschrieben, und der Bericht schliesst mit verschiedenen detaillierten Hinweisen auf die Praxis von Lebensversicherungs-Gesellschaften Australiens.

Tabellen sind hinzugefügt, welche nachfolgende Informationen geben:

1. Ein Verzeichnis der Gesellschaften der Reihenfolge ihrer Gründung nach.
2. Neues Geschäft für jedes Jahr, Betrag der erhaltenen Prämien, Berücksichtigung der Annuitäten und Fonds am Ende des Jahres.
3. Geschäft im Gange am Ende von fünfjährigen Perioden, eingetheilt in Lebensversicherung, Ausstattungs-Versicherung, Ausstattung und Annuität, wobei

gleichzeitig der durchschnittliche Betrag der Versicherungen nach den einzelnen Policen und der durchschnittliche Prämien-Prozentsatz angegeben ist.

4. Betrag der erhaltenen Prämien und vertheilten Baar-Tantièmen in jeder fünfjährigen Periode.

5. Total der Lebensversicherungen und Ausstattungs-Versicherungen zusammen genommen, gleichzeitig auch die rückfälligen Tantièmen in Kraft angebend.

6. Zinsraten und Ausgabe-Etat.

7. Anlage des Kapitals in jeder Klasse von Werthpapieren im Jahre 1884 und 1901.

INDUSTRIAL LIFE ASSURANCE IN AUSTRALASIA.

By Arthur M. Eedy,

General Secretary, Citizens' Life Assurance Co., Sydney.

The first attempt to establish the system of Industrial Life Assurance in Australasia appears to have been made prior to the year 1877, in the colony of New Zealand, where a Government Life Insurance Department was established in 1869, at the instance of Sir Julius Vogel, for the purpose of insuring and granting annuities on the lives of such persons as desired to avail themselves of the guarantee of the Colony in addition to the ordinary security provided by the funds of a Life Office.

In so democratic a country, and with so wide a charter, the transaction of Industrial Life Assurance by the Department came about in the natural order of things and was in fact, early essayed, but quickly abandoned, the Department in 1877 reporting: "The deficiency in the Industrial Branch, caused by it being closed immediately after considerable expense had been incurred in starting it, has now been made good, and there is a balance of £333 to its credit. One Claim for £168:15:0 has arisen during the year caused by the first death that has been experienced in the Branch."

It is interesting to note that the first claim under an Industrial Life policy in Australasia should be for so large an amount, comparatively, as £168.

After a period of inactivity, the New Zealand Government reconstructed the Industrial Branch of its Insurance Department and again placed it in active operation on 13th March, 1881. For the year ended 30th June, 1882, the Department reported: "The progress of the Branch continues rapidly to increase and gives promise of wide development. The new policies issued from the Industrial Branch down to date of the report already exceed 5,000."

Of policies on the lives of adults, the average weekly premium in 1882 was 8½d. per week, and the average sum assured £51:7:6, while, of all policies, including infantile, the average weekly premium was 4½d. and the average sum assured £22:3. A weekly premium of twopence appears to have been the highest accepted by the Department in connection with any Infantile Assurance. For the year ended 31st December, 1883, the Department issued 3,605 new Industrial policies, and at the end of the year had 7,394 policies in force (assuring £98,964 on the lives of adults and a varying sum on children's lives), for a total weekly premium of £121:10:10. The amount assured by the infantile policies depended upon the age of the child at entry, and the duration of the policy.

In 1886 it was suddenly announced that the Industrial Branch was being rapidly wound up. The policies in force then numbered 4,193 assuring £59,515, with a weekly premium income of £52:12:0.

In 1887 one of the most interesting experiments made, in any part of the world, in connection with Industrial Life Assurance, came to an end, the New Zealand Government Life Insurance Department then reporting:

"The closing of this Branch [industrial] is now nearly completed; all the large centres have been practically closed, except two, and the winding up of the business there is now rapidly approaching completion."

In the great Island Continent of Australia, 1,200 miles distant from New Zealand, I can find no trace of an Industrial Life Policy dated earlier than 1884, in which year two companies commenced to transact the business, one in Sydney, New South Wales, and another in Brisbane, Queensland, while a third, with headquarters in Melbourne, Victoria, announced its intention to do so at an early date. More than one society offering sick and medical benefits also commenced operations about the same time.

In 1884 ten offices, transacting Industrial Life Assurance reported to the British Board of Trade. These ten offices possessed funds amounting to £3,000,000, were collecting in premiums £3,000,000 yearly, spending £1,341,000 in agency and management expenses, and disbursing £1,125,000 in claims. The number of Industrial policies in force in the United Kingdom in 1884 was approximately, 9,000,000, assuring £83,000,000. These results had been secured after thirty years' work in a country of small area containing a great population, of which a large proportion was precluded from taking out Ordinary Life policies. In the United States of America, where the first Industrial policy was issued in 1875, the business was well established in 1884, one Company at the end of that year reporting 671,000 policies in force and another 325,000. The success which had attended the business in the two great countries named was the beacon light pointing out the way which Australasian offices should follow.

In Australia the conditions differed (and still differ) greatly from those which obtained in the United Kingdom or the United States of America. The census taken on 3rd April, 1881, revealed a population (exclusive of Aborigines and Polynesians) of 2,246,269, as follows:

Population.	New South Wales.	Queensland.	South Australia.	Tasmania.	Victoria.	Western Australia.	Totals.
Males...	411,149	118,977	149,530	61,162	452,083	17,062	1,209,963
Females.	340,319	88,200	130,335	54,543	410,263	12,646	1,036,306
Total.	751,468	207,177	279,865	115,705	862,346	29,708	2,246,269

These people were distributed over an area of 2,973,000 square miles, about one-third of the area of the British Empire at the present time. The population of the Chief Cities (including Suburbs) was:

City.	Colony where situated.	Enumerated population.	Proportion to total population of Colony.
Sydney	New South Wales.	224,211	29.84
Brisbane.....	Queensland.	31,109	14.57
Adelaide	South Australia.	67,954	24.28
Hobart	Tasmania.	27,248	23.55
Launceston	Tasmania.	16,765	14.49
Melbourne.....	Victoria.	282,947	32.81
Ballarat	Victoria.	41,087	4.76
Sandhurst	Victoria.	38,420	4.45
Perth	Western Australia.	5,822	19.60

Outside of these nine Chief Cities there were but fifteen towns with a population exceeding 5,000, the minimum size of a town in which, in Australia, an Industrial Agent may be profitably and successfully located. Of the total population of 2,246,000, only 850,000 were, in fact, acces-

sible to the Industrial Life Agent. Ordinary Life Assurance was flourishing, and it was said at the time that there was, probably, in the Colonies no young man of 20 unable to take out a policy for £100.

The time and the conditions, then, gave no great promise of success when, in 1884, the City Mutual Life Assurance Society, Limited, of Sydney, which had transacted Ordinary Life business since its establishment in 1879, decided to commence the transaction of Industrial business. The sixth annual report of the Society said, *inter alia:*

"As the vast majority of persons have never availed themselves of the benefits of Life Assurance, the Directors decided by the issue of policies for small amounts and accepting payment of premiums by weekly or monthly installments, to endeavour to popularise Life Assurance with the masses of the people. It is yet too early to speak definitely as to results."

To the late James P. Garvan, at one time Colonial Treasurer and at another Minister for Justice for the Colony of New South Wales, is due the credit of successfully establishing Industrial Life Assurance in Australia. He held that the good effects of Life Assurance on the community at large consisted more in the fact of taking out a policy than in the amount of that policy.

The City Mutual, confining its operations to the Colony of New South Wales for one year and then extending to Queensland, continued to transact the business until the end of 1886, when its Industrial Branch business was purchased by the Citizens' Life Assurance Company, Limited, which commenced business on 1st January, 1887, and is still actively operating.

On 1st February, 1884, the Industrial Mutual Life Assurance Society of Australia, Limited, was registered at Brisbane, Queensland. In the first eleven months 600 policies were issued, the average amount per policy being £142, and the average age of the assured 31 years. In 1885 New South Wales was brought within the sphere of the Society's influence, and in 1888 it was decided to wind it up, the Directors reporting as follows, with regard to the unsatisfactory results then shown:

"Several causes have combined to bring about the present regrettable state of affairs, one of the principal of which has been the extraordinary competition of older and more influential offices, which offered greater benefits to their assurers than a young office could feel justified in promising. Another cause has been the want of capital. When this office commenced business Industrial Life Assurance was not known in these Colonies, and the heavy rate of expense entailed in working up a business of this description among a scattered population required more money than the Office could command. Hence our operations have been circumscribed, and the want of funds with which to work the business thoroughly has paralysed our efforts to place the Society on a broad and firm basis."

On 16th January, 1885, the policy-holders of the Australasian Temperance and General Life Assurance Society, Limited (established in the year 1876), of Melbourne, Victoria, adopted the recommendation of the Directors to add an Industrial Department to the business of the Society.

The Equitable Insurance Association of New Zealand, a fire and marine office, commenced the transactions of Industrial Life Assurance in 1885, but ceased doing so in 1889, when its Industrial business was taken over by the Provident and Industrial Assurance Company of New Zealand, formed the same year.

The Australian Mutual Prudential & Medical Assurance Society, Limited, was registered at Sydney, 18th August, 1886, but ceased to do business early in 1887.

After an interval of six years, another Industrial Life Office, The

Australian Metropolitan Life Assurance Company, Limited, was established, registration being effected at Brisbane, Queensland, on 17th July, 1895.

From that date the prospectuses of Industrial Life Offices fell "thick as autumnal leaves that strew the brooks of Vallombrosa." Prompted, no doubt, by the success which had rewarded the efforts put forth by one or two Companies, the establishment of new offices went on apace. Generally speaking the promoters were men experienced only in the field work of an Industrial Life Office.

The People's Prudential Benefit Society, Limited, was registered at Sydney on 10th August, 1896.

The Standard Life Association was registered at Sydney 27th March, 1899.

The Prudential Life Assurance Company of Australasia, Limited, was registered at Brisbane on 2d February, 1900. This Office never published returns, and probably never commenced business. Table No. 1 in its prospectus was styled "The short period accumulative revisable endowment policy." For a weekly premium of 1/- paid for 8 years £21 and bonuses were promised, the assured having the privilege of receiving the amount assured at the end of four years, if the premiums for eight years were paid within one year from date of entry.

On 22d July, 1902, the Phœnix Mutual Provident Society, Limited (established 1846 and enrolled as a Friendly Society in 1848), was registered at Sydney.

The British Imperial Mutual Association was registered at Sydney, 13th January, 1903.

The Australian Mutual Life Assurance & Co-Operative Benefit Society, Limited, was registered at Sydney, on 4th February, 1903.

The following table shows the name of Industrial Life Offices known to be in active operation at the present time, the date of their registration, their capital, the State or Colony in which they operate, and the year in which the transaction of Industrial business was commenced:

Name of Company.	Date of Commencing Industrial Business.							Capital.		
	New South Wales.	Victoria.	South Australia.	Queensland.	West Australia.	Tasmania.	New Zealand.	Nominal.	Subscribed.	Paid up.
Australasian Temperance and General Life Assurance Society, Ltd.....	1885	1885	1885	1898	.....	.....	1902	.....	No Capital	.....
Citizen's Life Assurance Company, Ltd..	1887	1888	1888	1887	1890	1890	1894	£200,000	£200,000	£20,000
People's Prudential Assurance Company, Ltd.....	1896	.....	.....	.....	.....	.....	.....	10,000	5,000	4,694
Provident and Industrial Insurance Company of N. Z.....	1889	.....	.....	1895*	.....	.....	1889	50,000	19,000	4,750
Standard Life Association, Limited	1899	1900	.....	.....	.....	.....	.....	250,000	12,500	12,500
The Australian Metropolitan Life Assurance Company, Ltd.....	1897	.....	.....	1895	.....	.....	.....	12,000	12,000	9,222
								£522,000	£248,000	£51,166

*Withdrew from Queensland 31st December, 1901.

The number of Industrial policies existing in the Commonwealth of Australia and the Colony of New Zealand at the end of 1902, was, approximately, 291,198 assuring £6,216,589, distributed as follows:

INDUSTRIAL LIFE POLICIES IN FORCE.

	Number.	Amount.	Average amount of each policy.
New South Wales	89,224	£1,869,431	£21
Victoria	91,153	1,889,182	21
South Australia	33,404	714,553	21
Queensland	33,856	747,666	22
West Australia	9,485	261,152	28
Tasmania	7,547	161,450	21
Commonwealth of Australia	264,669	£5,643,434	£21
New Zealand	26,529	573,155	22
Australasia	291,198	£6,216,589	£21

The average weekly premium per policy is fourpence. Excluding assurances on the lives of infants (assurances on lives of persons under 11 next birthday are styled "infantile") the average amount per policy is £20 and the average weekly premium fivepence. On the assumption that the territory accessible to the agents is made up of Cities and Towns the population of which is 5000 or more, the number of policies in force per 100 inhabitants, men, women and children, in each State or Colony is:

	Number of policies per each 100 of accessible inhabitants.
New South Wales	14
Victoria	15
South Australia	17
Queensland	16
West Australia	13
Tasmania	11
Commonwealth	15
New Zealand	9
Australasia	14

Of the total number of policies in force about 27% (79,000) are on the lives of children. The average age attained is 21, or excluding children under 11, 29 years.

In the one Company whose records were accessible to me, and which holds 68 per cent. of the total business in force, the average duration of Industrial policies at the end of 1902 (when the office was sixteen years old) was 5.88 years.

Of adult assurances about as many are on the lives of females as on the lives of males.

The popularity of endowment assurances has been a marked feature in the history of Ordinary life assurance for a not inconsiderable number of years; and this has been especially also in the case of Australasia. So far as regards Industrial Life Assurance 90% of the existing business in the United Kingdom is Whole Life, whereas in Australasia probably not more than 23% of the business in force consists of assurance contracts under which the premiums are payable during the whole of life and the sums assured at death. It has been found a matter of the greatest difficulty to popularise the whole-life Industrial policy in Australasia.

Pure Endowment business, the successful working of which is a problem yet to be solved—if it be worth while—by Industrial Companies, accounts for about 45,000 of the policies in force. The issue of such policies has been discontinued by the largest Company for some years.

In the case of assurances on the lives of adults quarter benefit is given during the first six months, one-half benefit after six and within twelve months, and full benefit after twelve months. Should death result from accident, however, full benefit is given no matter what the duration of the policy. Free or Paid-up policies, and in some cases Cash Surrender values, are promised after the premiums for five years have been paid. To ensure prompt payment of claims the policy is in all cases made a special contract, under which payment may be made to deceased's widow, widower, child, or any relation by blood or marriage. I append the table under which the bulk of adult policies are being issued at the present time, and also the whole-life table used by five of the six offices. The former is, probably, the best form of Industrial endowment assurance policy yet devised.

ADULT ASSURANCE.

Weekly payments of 6d. for an Assurance of £10 payable at death, should that occur within 20 years from entry, together with a return of all the premiums paid. Should the Assured survive the 20 years, payments of premiums cease, and one of the three Options set forth in the table may then be claimed. Larger premiums secure correspondingly higher benefits.

Age Next Birthday at Entry.	Sum assured at Death during 20 Years.	Options at the End of 20 Years.		
		Immediate Cash Payment.	Cash Payment at Age of 60, or Death, if previous.	Paid-up Policy. Payable at Death.
Yrs.	£10 and return of all Premiums paid.	£ s.	£ s.	£ s.
11		20 18	49 10	60 17
12		20 15	48 1	59 7
13		20 13	46 11	57 17
14		20 10	45 2	56 7
15		20 8	43 12	54 17
16		20 6	42 5	53 10
17		20 3	40 19	52 3
18		20 1	39 12	50 15
19		19 18	38 6	49 8
20		19 16	36 19	48 1
21		19 14	35 16	46 17
22		19 12	34 12	45 13
23		19 9	33 9	44 10
24		19 7	32 5	43 6
25		19 5	31 2	42 2
26		19 2	30 0	40 19
27		18 19	28 18	39 16
28		18 15	27 15	38 13
29		18 12	26 13	37 10
30		18 9	25 11	36 7
31		18 4	24 10	35 4
32		17 19	23 9	34 2
33		17 14	22 7	32 19
34		17 10	21 6	31 17
35		17 5	20 5	30 14
36		16 17	19 5	29 10
37		16 10	18 6	28 6
38		16 2	17 6	27 3
39		15 15	16 7	25 19
40		15 7	15 7	24 15

If death occur during the first six months of Policy the sum payable shall be £2 10s. and return of premiums paid. It death occur after the Policy has been six months in force but before it is twelve months in force the sum payable in case of death shall be £5, with return of all premiums paid, but if death occur from ACCIDENT at any time after the issue of the policy the full sum assured shall be payable. After twelve months the assured will be in full benefit.

Policies issued under this table carry cash surrender values after FIVE years' premiums have been paid.

WHOLE OF LIFE ASSURANCE.

Sums assured on the failure of a life (if in full benefit) for a weekly premium of one penny.

Age Next Birthday.	Sum Assured.	Age Next Birthday.	Sum Assured.
11	£10 0 0	36	£5 1 0
12	9 18 0	37	4 17 0
13	9 17 0	38	4 14 0
14	9 16 0	39	4 11 0
15	9 11 0	40	4 8 0
16	9 6 0	41	4 5 0
17	9 1 0	42	4 2 0
18	8 16 0	43	3 19 0
19	8 11 0	44	3 16 0
20	8 6 0	45	3 14 0
21	8 1 0	46	3 11 0
22	7 16 0	47	3 8 0
23	7 12 0	48	3 6 0
24	7 7 0	49	3 3 0
25	7 3 0	50	3 0 0
26	6 19 0	51	2 18 0
27	6 14 0	52	2 16 0
28	6 10 0	53	2 14 0
29	6 6 0	54	2 11 0
30	6 2 0	55	2 9 0
31	5 18 0	56	2 7 0
32	5 15 0	57	2 5 0
33	5 11 0	58	2 3 0
34	5 7 0	59	2 0 0
35	5 4 0	60	1 18 0

When the age next birthday of proponent at date of entry is under 16, three-pence is the highest weekly premium accepted.

As regards assurance on the lives of infants, while the practice of the offices varies, all limit the amount of risk on any one life and graduate the benefits according to the age of the child and the duration of the policy, as shown in the following table:

INFANTILE ASSURANCE.

BENEFITS OFFERED FOR A WEEKLY PREMIUM OF ONE PENNY.

Office.	Amount payable in the event of death within 3 months from date of policy.	Minimum amount of Death benefit payable after 3 months.	Maximum amount of Death benefit payable.	Duration of policy when maximum amount is payable if child be one year at date of entry.	Other benefits if death does not take place.	Maximum amount of weekly premium accepted for any one risk.
No. 1	Return of Premiums.	£1: 0: 0	£10: 0: 0	10 years	Nil.	3d. under 6 years or 6d. over 6 years next birthday.
No. 2	Nil.	£1: 0: 0	£8: 0: 0	12 years	£20 payable at age 65 when premiums cease to be payable.	* 3d.
No. 3	Not stated.	5/	£10: 0: 0	10 years	Nil.	2d.
No. 4	Nil.	£1: 5: 0	£10: 0: 0	10 years	Nil.	2d.
No. 5	Return of Premiums.	5/	£10: 0: 0	10 years	£10 payable at age 70 when premiums cease to be payable.	1d.
No. 6	Nil.	£1: 0: 0	£10: 0: 0	10 years.	Nil.	3d.

*When the child is under the age of one year two pence is the maximum weekly premium taken.

Office No. 2 also grants Cash Surrender Values and Paid-up Policies.

For children as well as for adults the great demand is for policies under which the premiums are paid for a limited number of years and the benefit then attained. An attempt to meet the demand has been made by the issue of the following Table, under which very many policies are now being issued:

INFANTILE ASSURANCE.

Weekly payments of 6d. for an Assurance according to the following scale, payable at death, should that occur within 20 years from entry, together with a return of all the premiums paid. Should the Assured survive the 20 years, payments of premiums cease and one of the three Options set forth in the table may then be claimed.

Age next Birthday at Entry.	Amount payable at death in addition to the return of all Premiums paid after the Policy has been issued for										Options at the end of 20 yrs.		
	1* Year.	2 Years.	3 Years.	4 Years.	5 Years.	6 Years.	7 Years.	8 Years.	9 Years.	10 to 20 Years.	Immediate Cash Payment.	Cash payments at 60 or at death if previous.	Paid-up Policy payable at death.
Yrs.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.
1	2 0	3 0	4 0	5 0	5 0	6 0	7 0	8 0	9 0	10 0	21 0	63 0	73 11
2	3 0	4 0	5 0	5 0	6 0	7 0	8 0	9 0	10 0	10 0	21 0	61 13	72 6
3	4 0	5 0	5 0	6 0	7 0	8 0	9 0	10 0	10 0	10 0	21 0	60 7	71 1
4	5 0	5 0	6 0	7 0	8 0	9 0	10 0	10 0	10 0	10 0	21 0	59 0	69 17
5	5 0	6 0	7 0	8 0	9 0	10 0	10 0	10 0	10 0	10 0	21 0	57 13	68 12
6	6 0	7 0	8 0	9 0	10 0	10 0	10 0	10 0	10 0	10 0	21 0	56 7	67 7
7	7 0	8 0	9 0	10 0	10 0	10 0	10 0	10 0	10 0	10 0	21 0	55 0	66 2
8	8 0	9 0	10 0	10 0	10 0	10 0	10 0	10 0	10 0	10 0	21 0	53 13	64 17
9	9 0	10 0	10 0	10 0	10 0	10 0	10 0	10 0	10 0	10 0	21 0	52 7	63 12
10	10 0	10 0	10 0	10 0	10 0	10 0	10 0	10 0	10 0	10 0	21 0	51 0	62 7

* If the Assured die within three calendar months from the date of the policy, the premiums paid will be returned with 10 per cent. interest, and if after three months and before twelve months, the benefit paid will be half the amount in this column together with the return of all the premiums paid. Maximum weekly premium under this Table is 1s. 6d. in Australia and 1s. in New Zealand.

Policies issued under this table carry cash surrender values after five years premiums have been paid.

For the year ended 31st December, 1902, the premiums under Industrial policies received by the six Companies amounted to £290,000 and the interest receipts to £16,000, £41,000 was paid in claims by death, £18,000 for Endowments matured, and £5,000 in cash surrender values. The assets of the Companies at 31st December last amounted to £458,000, made up as follows:

Assets of Australasian Industrial Life Offices at 31st December, 1902. (Ordinary Branch Funds Excluded).

1.	Freehold Property	£131,000
2.	Loans on Mortgage	124,000
3.	Government and Municipal Securities	120,200
4.	Cash in Bank or on hand	34,000
5.	Loans on Policies	16,000
6.	New business extension account	10,000
7.	Other assets	22,800
		£458,000

A very noticeable feature of the accounts presented by the Companies is the very small amount or entire absence in some cases of outstanding premiums on policies in force.

The average rate of interest (calculated by Mr. G. F. Hardy's formula) that is being earned by the funds is four per cent.

Several causes combine to make the cost of conducting Industrial business in Australasia higher than is the case in the United Kingdom. The new forms a large proportion of the total business; extension of the business necessary organisation over a vast area has involved considerable outlay and increased the cost of the supervision; to secure and retain suitable representatives the offices must make the remuneration of their agents at least equal to the wages of mechanics, tradesmen, etc., which are higher in Australasia than in the United Kingdom. For intelligence, resourcefulness, and integrity, the Australian Industrial agent ranks high.

As a result of the favourable climatic conditions which prevail throughout almost the whole of Australasia (certainly in those portions in which the Industrial agent works), and of the high standard of living which obtains, the mortality experience of Industrial Life Offices has been a distinctly favourable one. Investigations of Australian mortality have been made from time to time, as fully set out by Mr. David Carment in his paper printed in the transactions of the Second International Actuarial Congress, and these bear out the opinion that the favourable mortality so far experienced by the offices is likely to be continued. After an Australian child has successfully passed through two summers I believe his or her vitality and prospects of longevity to be unsurpassed in any part of the world.

The English Life Table, No. 3, is employed in the valuation of Industrial Life Offices, and the following comparative Tables may therefore be of some interest:

PROBABILITY OF LIVING A YEAR.—px.

Age.	New South Wales and Victoria. 1881–1891.*		English Life. No. 3.	
	Males.	Females.	Males.	Females.
0	.8672	.8832	.8364	.8653
1	.9649	.9657	.9357	.9381
2	.9868	.9877	.9645	.9646
3	.9907	.9913	.9762	.9758
4	.9927	.9930	.9822	.9823

AVERAGE AFTER LIFE TIME—EXPECTATION OF LIFE.

Age.	New South Wales and Victoria. 1881–1891.*		English Life Table No. 3.	
	Males.	Females.	Males.	Females.
0	47.79	50.71	39.91	41.85
5	53.61	55.92	49.71	50.33
10	49.61	51.88	47.05	47.67
15	45.21	47.46	43.18	43.90
20	41.05	43.31	39.48	40.29
30	33.49	35.81	32.76	33.81
40	26.21	28.70	26.06	27.34
50	19.43	21.80	19.54	20.75
60	13.44	15.12	13.53	14.34
70	8.46	9.49	8.45	.902

* Figures obtained from "Rates of Mortality in New South Wales and Victoria," by Mr. W. R. Dovey.

The mortality of the capital Cities of Australasia, whence most of the Industrial business comes, is low. The following are the figures for the year 1901:

City.	Where situated.	Deaths per 1000 of mean population.
Wellington.	New Zealand.	10.29
Sydney.	New South Wales.	12.62
Brisbane.	Queensland.	12.72
Adelaide.	South Australia.	13.13
Hobart.	Tasmania.	14.46
Melbourne.	Victoria.	15.09
Perth.	West Australia.	16.74

The effect of immigration must not be overlooked when considering the significance of these figures.

The following table compares the actual with the expected claims by the English Life Table, No. 3, Males, for the year 1901—so far as regards adult whole-life assurances—of the largest Australian Industrial Life Office. Exposures and deaths arising out of the new entrants of 1901 have been excluded.

Ages.	Mean amount exposed to risk.	Death Claims.		Excess of expected over actual.	Ages.
		Actual.	Expected.		
10–14	249,206	550	1,235	685	10–14
15–19	185,725	738	1,161	423	15–19
20–24	112,094	742	974	232	20–24
25–29	50,308	414	480	66	25–29
30–34	47,705	307	506	199	30–34
35–39	63,970	710	767	57	35–39
40–44	89,392	829	1,263	434	40–44
45–49	105,781	1,265	1,828	563	45–49
50–54	107,150	1,831	2,322	491	50–54
55–59	97,627	2,036	2,729	693	55–59
60–64	75,470	2,487	2,836	349	60–64
65–69	47,975	2,450	2,658	208	65–69
70–74	24,162	1,925	1,939	14	70–74
75–79	4,866	475	570	95	75–79
80	475	43	79	36	80
All Ages.	1,261,906	16,802	21,347	4,545	All Ages.

The Companies go to considerable expense and trouble in order to ensure proper selection of risks submitted. Medical examinations are made more frequently, I believe, than is the case in Great Britain, but not so frequently, apparently, as in the United States of America, where one office has every proponent for an Industrial policy examined or inspected by a medical man.

Of the six Industrial companies, five transact Ordinary Life business (although only two, at present, publish separate accounts for the two Branches), and a large measure of success has attended the efforts put forth in this direction. The Industrial Branch has proved in Australia, as it has elsewhere, a splendid kindergarten for policy-holders and agents, while the field force of a well organised Industrial Office is brought in contact with, and enabled to bring under the protection afforded by Life Assurance, that large class for which the Industrial policy is not suitable, and which Ordinary Life Offices cannot reach at all, or only to a limited extent.

Thus, the average amount of each new policy issued by the Australasian Offices which transact Ordinary business only is £231 and the average amount of each policy in force £265, while the average amount of each Ordinary policy issued by the Industrial Offices is £141, and the average amount of each policy in force £138. The latter class of business has in the United States of America been not inaptly termed "intermediate."

The five Industrial Companies which also transact Ordinary business have 44,000 Ordinary policies in force assuring £6,100,000 (70 per cent. is held by one Company), their yearly new business of this class being about 11,000 policies assuring £1,520,000, while the Ordinary Branch funds of the two offices with separate accounts amount to £911,203.

Life Assurance Legislation in Australasia was very fully dealt with in a paper prepared by Mr. Richard Teece and submitted to the second International Actuarial Congress in 1898. Since that date the Life Assurance Companies Act, 1901, has been added to the statutes of the State of Queensland, and of this, and also of some provisions of "The Life Assurance Policies Act, 1884," New Zealand, especially affecting Industrial Life Assurance, I propose to make some mention.

The Commonwealth of Australia welding the six Australian Colonies

—now called States—into one Federation was inaugurated 1st January, 1901, and its Constitution gives it power to make laws for the peace, order and good government of the Commonwealth with respect to Insurance, other than State Insurance; also State Insurance extending beyond the limit of the State concerned. Up to the present time the Commonwealth Parliament has not found time to deal with the matter, and meanwhile Companies have to comply with the various requirements of the six States as well as those of the Colony of New Zealand.

The provisions of the Life Assurance Companies Act, 1901, of Queensland are, broadly speaking, similar to those which obtain in the Acts of the other States. The interests of the assured are protected under Section V, which provides that every Company which commences or carries on Life Assurance business in Queensland shall deposit with the Treasurer approved securities to the value of £10,000. All moneys and securities deposited with the Treasurer are primarily liable for Queensland contracts. In this Act Industrial Life Assurance, for the first time in Australia, received attention, a fact no doubt due to the recognised and increasing importance of the business.

In Section 25, an Industrial Life Policy is defined as: "One policy being issued on any one life for a sum less than £100, upon which the contribution or premiums payable by the Assured are by the terms of such policy made payable at intervals of less than three months, or are contracted to be received, or any one or more of which have actually been received, by means of collectors."

The same section of the Act provides that the forfeiture of an Industrial Policy issued by any Company should not be incurred by any person assured thereunder by reason of any default in payment of any contribution or premium until after:

(a) Notice stating the amount due or payable at the date of the notice and informing him that in default of payment by him within a reasonable time, not being less than thirty days from the date of service of the notice, and at a place to be specified in such notice, his policy will be forfeited, has been served upon him by or on behalf of the Company, either personally or by leaving the same at his usual or last known place of abode or business, or by sending the same by post addressed to him by registered letter at such usual or last known place of abode or business; and

(b) Default has been made by him in paying his contribution or premium in accordance with that notice, together with any additional contribution or premium which has become due or payable up to the date of payment.

In the Colony of New Zealand, "The Life Assurance Policies Act, 1884," makes special provisions for Insurance by parents on lives of children, in section 35, as follows:

It shall be lawful for any parent to insure the lives of all or any of his children who are under the age of ten years at the date of effecting the insurance, and for any Company to effect such insurance, subject to the following conditions:

(1) No Company shall insure or pay on the death of any child under five years of age any sum of money which, added to any sum of money payable by any other Company, or by any society registered under any Act relating to friendly societies, on the death of such child, exceeds six pounds; or on death of a child under ten years of age any sum of money which, added to any sum of money payable by any other Company, or by any society registered under any Act relating to friendly societies, on the death of such child, exceeds ten pounds.

(2) No Company shall pay any sum on the death of a child under ten years of age except to the parent of such child or to the executor or

administrator of such parent, and then only upon the production by such parent or executor or administrator of a certificate of death in the form mentioned in the next sub-section hereof, issued by the Registrar of Births and Deaths or other person having the care of the register of deaths, containing the particulars after mentioned.

(3) Whenever a certificate of the death of a child is applied for, for the purpose of obtaining a sum of money from a company, the name of such company and the sum sought to be obtained therefrom shall be stated to the Registrar of Births and Deaths, who shall write on or at the foot of such certificate the words "To be produced to the . . . . . (naming the Company), said to be liable for payment of the sum of £ . . . (stating the sum)"; and all certificates of the same death shall be numbered in consecutive order and the sum charged by the Registrar of Births and Deaths for each such certificate shall not exceed one shilling.

(4) No Registrar of Births and Deaths shall give any one or more certificate of death for the payment in the whole of any sum of money exceeding six pounds on the death of a child under five years, or for the payment in the whole of a sum exceeding ten pounds on the death of a child under ten years; and no such certificate shall be granted unless the cause of death has been previously entered in the register of deaths on the certificate of a Coroner, or of a registered medical practitioner who attended such deceased child during its last illness, or except upon the production of a certificate of the probable cause of death under the hand of a registered medical practitioner, or of other satisfactory evidence of the same.

(5) Any company to which is produced a certificate of the death of a child which does not purport to be the first certificate shall, before paying any money thereon, be bound to inquire whether any and what sums of money have been paid on the same death by any other company or by any society registered under any Act relating to friendly societies.

(6) If any company pays money on the death of a child under ten years of age otherwise than is provided by this Act, it shall be liable to a penalty not exceeding one hundred pounds.

(7) If any parent or executor or administrator of a parent claiming money on the death of a child produces any certificate of such death other than is herein provided to the company from which the money is claimed, or produces a false certificate, or one fraudulently obtained, or in any way attempts to defeat the provisions of this Act with respect to payments upon the death of children, the person so offending shall be liable to a penalty of not more than one hundred pounds.

But the provision of this section shall not be deemed to apply to policies on the lives of children by the terms of which money is payable on the expiration of a certain period or the attaining of a specified age, or by the terms of which the whole or any part of the moneys paid to the company in respect of such policy are returnable on the death of the child.

The burden of taxation which Australian Life Offices—Industrial as well as Ordinary—have to bear is a heavy and an increasing one.

The following summary shows the nature of taxation in each State and in New Zealand:

State or Colony.	Land Tax.	Income Tax.	Stamp Duty.	Dividend Duty.	Miscellaneous.
N.S.W.	Land & Income Tax Assessment Act 1895. Tax: 1d. in the £1 on the unimproved value of lands situated in N. S. W.	Land & Income Tax Assessment Act 1895. Tax: 6d. in the £1 on Income derived in N. S. W. Income: Taxable amount for life office is interest from investments in the Colony. Deductions: In arriving at the net income certain deductions are allowed, such as salaries of members of the staff employed in the production of income travelling expenses, printing, etc., together with 5% of the unimproved value of land and buildings occupied for the purpose of business.	Life Policies not liable to Stamp Duty.		
Q'land			The Stamp Duties Act 1894. Life Policies not exceeding £50 are exempt. Policies above that amount are liable to a duty of 1/- for every £100 or fractional part of £100.	The Dividend Duty Act 1890. Tax: 20/- for every £100 of the premiums received in Q'eensland.	
Vic.		Income Tax Amendment Act 1903. Taxable amount of income of every Company shall be equal to 30% of premiums received in Victoria. Tax: 1/- for every £1 of taxable amount.	Life Policies and Premium Receipts are exempt from Stamp Duty.		

State or Colony.	Land Tax.	Income Tax.	Stamp Duty.	Dividend Duty.	Miscellaneous.
S. A.	Land & Income Tax Acts 1884. Tax: ½d. for every £1 of unimproved value. Taxation Act Amendment Act 1894 imposes an additional tax of ½d. in the £1 over £5000. A further tax of ¼d. in the £1 has been imposed this year	Land & Income Tax Act 1884. The taxable income of a life office shall be deemed to be the amount of profit divided amongst its members in S. A. with the addition of any amount of profits carried to any reserve fund or capitalised in any way. Tax: 9d. for every £1 up to £800: 1/ 1½d for every £1 over £800. No deductions.	Stamp Act Amendment Act 1902. Annual License, 10/- for every £100 of gross premiums received in S. A. *A tax of 1/- is payable on every policy as an "agreement not under seal."		
W. A.			Stamp Act 1882 Life Policies specially exempted.		Life Assurance Companies Act 1889. By regulations under the Life Assurance Companies Act 1889 an annual fee of 30/- per £1,000 is payable on the securities deposited with the Treasurer in accordance with the Act. A fee of one guinea is charged in respect of each separate deposited security, every time the Treasurer is called upon to receive, deliver, or exhibit same.

* It is stated that this tax was not contemplated by the Legislature and that an amending act will be passed at the next session repealing this provision.

State or Colony.	Land Tax.	Income Tax.	Stamp Duty.	Dividend Duty.	Miscellaneous.
Tas.		Income Tax Act 1902. Taxable amount 20% of premiums received in Tasmania. Tax: 1/- for every £1 of Taxable amount.	Stamp Duties Amendment Act 1882. Every Company before registration must pay to the Treasurer 1d. for every £1 of nominal capital of the Company.		
N. Z.	Land & Income Assessment Act 1900. Tax: Ordinary and graduated. Former 1d. in the £1 on unimproved value. Latter is payable according to scale, at rate of between 8d. and 2d. in the £1 according to the total unimproved value of all land (other than mortgages) of any tax-payer. The mortgage tax is 6/-3d. for every £100 invested on mortgage.	Tax 1/- in the £1 of the total income from the investments of any kind other than investments in or on land.	Stamp Act 1882 and amendments. A license of £200 is imposed. Policies exempt.		

The scientific unfairness of the taxation imposed by the Victorian Income Tax Amendment Act, 1903, the Queensland Dividend Duty Act, 1890, the South Australian Stamp Act Amendment Act, 1902, and the Tasmanian Income Tax Act, 1902, is accentuated by the fact that no discrimination is made between Ordinary and Industrial Life Offices.

As to the future of Industrial Life Assurance in Australasia, its growth must necessarily depend upon the growth of population, which has been slow for years past, and it is probable that, for some years to come, the Ordinary or Intermediate branches of the companies which transact Industrial business will show the more rapid expansion.

The following tables show the ages of males and females (exclusive of Aborigines) in the Commonwealth and New Zealand when the census was taken in 1901:

MALES.

Age Group.	New South Wales.	Victoria.	Queensland.	South Australia.	West Australia.	Tasmania.	Common-wealth.	New Zealand.
Under 5	80,308	66,786	31,307	20,260	10,441	10,702	219,804	44,324
5 and under 10	84,189	72,051	31,908	22,756	8,891	11,160	230,955	43,314
10 " " 15	81,582	67,374	29,005	22,193	7,505	10,649	218,308	43,100
15 " " 20	70,423	58,882	23,684	20,007	7,088	9,388	189,472	42,456
20 " " 21	12,754	10,428	4,830	3,618	1,957	1,764	35,351	8,559
21 " " 25	49,694	40,144	19,760	13,023	9,884	6,497	139,002	32,637
25 " " 30	56,273	45,461	23,634	13,771	15,822	7,276	162,237	35,307
30 " " 35	52,596	46,624	22,639	12,945	14,845	6,422	156,071	29,694
35 " " 40	52,335	46,718	22,083	12,013	12,441	6,262	151,852	24,301
40 " " 45	44,930	37,104	18,419	11,371	8,722	5,273	125,819	21,589
45 " " 50	33,338	24,130	13,046	9,033	5,220	3,760	88,527	19,134
50 " " 55	25,615	18,336	10,187	6,767	3,453	2,797	67,155	15,413
55 " " 60	19,634	15,339	7,981	5,336	2,311	1,996	52,597	13,711
60 " " 65	16,733	14,970	6,783	3,992	1,767	1,729	45,974	12,803
65 " " 70	13,005	16,080	4,131	2,872	1,101	1,292	38,481	10,160
70 " " 75	7,772	11,772	2,230	2,282	692	1,123	25,871	5,348
75 " " 80	3,578	5,738	959	1,290	290	756	12,611	2,285
80 " " 85	1,883	2,452	453	646	140	459	6,033	1,050
85 and over	800	775	143	247	36	199	2,200	375
Unspecified (children)	277	502	5	.....	8	.....	792	24
Unspecified (adults)	2,286	2,054	3,043	.....	261	120	7,764	408
Total	710,005	603,720	276,230	184,422	112,875	89,624	1,976,876	405,992

FEMALES.

Age Group.	New South Wales.	Victoria.	Queensland.	South Australia.	West Australia.	Tasmania.	Commonwealth.	New Zealand.
Under 5	78,553	65,162	30,687	19,817	10,234	10,163	214,616	42,482
5 and under 10	81,946	70,495	30,947	22,612	8,856	10,864	225,720	42,422
10 " " 15	80,097	66,618	28,557	21,599	7,320	10,487	214,678	42,125
15 " " 20	70,736	59,704	22,792	20,162	5,849	9,063	188,306	42,358
20 " " 21	13,457	11,622	4,368	3,727	1,278	1,836	36,288	8,583
21 " " 25	51,361	45,987	16,818	13,813	6,001	6,313	140,293	33,377
25 " " 30	56,043	52,818	18,284	14,253	8,677	6,561	156,636	33,233
30 " " 35	46,697	48,160	15,958	12,368	7,298	5,576	136,057	27,272
35 " " 40	41,593	43,394	13,705	11,213	5,322	5,217	120,444	21,217
40 " " 45	33,436	33,554	10,710	9,596	3,391	4,467	95,154	17,347
45 " " 50	24,001	21,800	7,402	7,277	2,151	3,094	65,725	13,997
50 " " 55	19,327	17,590	6,042	5,573	1,678	2,379	52,589	11,991
55 " " 60	15,376	15,157	4,918	4,545	1,177	1,885	43,058	9,963
60 " " 65	12,192	14,299	3,957	4,026	908	1,725	37,107	8,017
65 " " 70	9,237	13,840	2,400	3,051	570	1,321	30,419	6,028
70 " " 75	5,202	8,349	1,382	2,280	279	910	18,402	3,236
75 " " 80	2,844	4,230	705	1,262	133	514	9,688	1,679
80 " " 85	1,574	2,064	343	698	56	302	5,037	852
85 and over	678	751	127	310	25	147	2,038	340
Unspecified (children)	44	372	11	.....	15	.....	442	15
Unspecified (adults)	447	1,384	253	.....	31	27	2,142	193
Total	644,841	597,350	220,366	178,182	71,249	82,851	1,794,839	366,727

Of the total population of 4,544,434 persons, 2,100,000 only can be approached by the agents of Industrial Offices, and of these very many possess the means to take out Ordinary life policies.

RÉSUMÉ.

ASSURANCE INDUSTRIELLE SUR LA VIE EN AUSTRALIE.

Par A. M. Eedy.

C'est en 1875 que le gouvernement de la Nouvelle Zélande fit le premier essai d'assurance industrielle sur la vie en Australie. Cette même année se produisit la première demande de paiement pour la somme comparativement forte de £158 15*s*. Après une période d'inactivité, l'affaire fut reprise en 1881 et finalement abandonnée en 1887.

Sur le continent australien même c'est en 1884 que fut émise la première Police Industrielle. La population blanche de l'Australie se montait à cette époque à 2,246,269 âmes distribuées sur une surface de plus de 2,973,000 milles carrés, environ le tiers de la surface de l'Empire Britannique. En dehors des neuf villes principales, il n'y avait que quinze villes dont la population dépassat 5,000 âmes et comme ce chiffre est celui du minimum de la population parmi laquelle peut opérer un agent industriel avec quelque chance de succès, il n'y avait que 850,000 habitants d'accessibles sur le total de £246,000.

C'est à feu James P. Garvan, qui fut à une époque Trésorier Colonial et à un autre Ministre de la Justice pour la Colonie de la Nouvelle Galles du Sud, qu'est dû le crédit d'avoir établi avec succès l'assurance industrielle en Australie.

Il y a maintenant six bureaux en activité.

Le nombre total des polices existant à la fin de l'année 1902, dans la Fédération Australienne et la Colonie de la Nouvelle Zélande, se montait approximativement à 291,198 assurant une somme de £6,216,589 sur laquelle la prime moyenne hebdomadaire était de quatre pences.

Le nombre moyen de polices en force par centaine d'habitants accessibles était de 14. Environ 27 pour cent du nombre de polices était sur les vies d'enfants âgés de moins de 11 ans. L'âge moyen obtenu est de 21 ans, ou, sans tenir compte des enfants, 29 ans. La durée moyenne des polices en force dans une compagnie qui fait 68 pour cent des affaires, était de 5 ans 88 en 1902 quand la compagnie avait 16 ans d'existence.

Sur les vies d'enfants les bénéfices sont gradués suivant l'âge de l'enfant et la durée de la police.

Dans le Royaume Uni 90 pour cent des affaires existantes s'appliquent à la vie entière, tandis qu'en Australie il n'y a probablement pas plus de 23 pour cent des contrats qui continuent jusqu'à la mort.

L'actif des Bureaux de Vie Industrielle en Australie (sans compter les Fonds locaux ordinaires) se montait à £458,000 qui rapportaient environ quatre pour cent d'intérêt.

Des recherches dans la mortalité en Australie ont montré des résultats plus favorables que la table de vie anglaise sur laquelle on calcule les taux et on fait les évaluations.

Des examens médicaux sont passés plus fréquemment que dans la Grande Bretagne, mais apparemment moins souvent que dans les États-Unis d'Amérique.

Cinq des companies font des affaires d'assurance ordinaires: elles ont 44,000 polices de ce genre assurant £6,100,000. Leurs nouvelles affaires de cette classe se montent annuellement à environ 11,000 polices assurant £1,520,000, tandis que les fonds locaux ordinaires des deux bureaux à comptabilité séparée se montent à £911,203.

Bien que la Fédération australienne soit investie du pouvoir de faire des lois pour gouverner l'assurance sur la vie elle n'a jusqu'ici rien fait dans cette direction. En attendant les compagnies doivent satisfaire aux divers règlements de chaque État australien et de la Colonie de la Nouvelle Zélande.

Les taux imposées dans quelques uns des États sont scientifiquement injustes surtout quand elles sont appliquées à l'assurance industrielle.

KURZE NOTIZ.

INDUSTRIELLE LEBENS-VERSICHERUNG IN AUSTRALASIEN

Von A. M. Eedy.

Industrielle Lebens-Versicherung wurde zuerst in Australasien von der Regierung von Neu-Seeland im Jahre 1875 unternommen. Der erste Anspruch auf die verhältnissmässig grosse Summe von £168 15*s.* wurde in diesem Jahre erhoben. Nach einer Periode von Unthätigkeit wurde das Geschäft in 1881 wieder belebt und schliesslich ganz und gar aufgegeben im Jahre 1887.

Die älteste Police in dem Festlande von Australien wurde im Jahre 1884 ausgeschrieben. Zu dieser Zeit war die gesammte weisse Bevölkerung in Australien 2,246,269, auf einen Flächeninhalt von 2,973,000 Quadratmeilen vertheilt, ungefähr ein Drittel des Flächeninhalts des britischen Kaiserreiches. Neben den neun Hauptstädten gab es nur 15 Städte mit einer Bevölkerung von mehr als 5000, und da dies die geringste Bevölkerung ist, unter welcher ein industrieller Agent arbeiten kann, nur 850,000 von der gesammten Bevölkerung von 2,246,000 waren zugänglich.

Der Ruhm, industrielle Versicherung erfolgreich in Australien eingeführt zu haben, gehört dem verstorbenen James P. Garvan, der zu einer Zeit Schatzmeister der Colonie und dann Justiz-Minister für die Colonie Neu-Süd-Wales war.

Jetzt bestehen im Ganzen 6 Gesellschaften dort.

Am Ende des Jahres 1902 betrug die Gesammt-Zahl der bestehenden Policen in dem Gemeinwesen von Australien und der Colonie von Neu-Seeland annähernd 291,198 mit einem Betrage von £6,216,589 mit einer durchschnittlichen wöchentlichen Prämie von 4 Pence.

Die Durchschnittszahl der Policen in Kraft pro 100 der zugänglichen Bewohner war 14. Ungefähr 27 Prozent der Policen-Anzahl sind Versicherungen des Lebens von Kindern unter 11 Jahren. Das Durchschnittsalter, das erreicht wird, ist 21, oder mit Ausschluss der Kinder 29 Jahre. Die Durchschnittsdauer der Policen in Kraft in einer Gesellschaft, welche 68 Prozent des Geschäfts macht, war in 1902 5.88 Jahre, und die Gesellschaft war damals 16 Jahre alt.

Bei Lebens-Versicherungen von Kindern sind die Vortheile je nach dem Alter des Kindes und der Dauer der Police abgestuft.

In dem Vereinigten Königthum sind 90 Prozent des ganzen Geschäfts in Lebens-Versicherungen bis auf den Tod ausgedehnt; in Australasien wahrscheinlich nicht mehr als 23 Prozent.

Das Einkommen der industriellen Lebens-Versicherungs-Gesellschaften in Australasien (mit Ausschluss der Fonds gewöhnlicher Zweige des Geschäfts) betrug £458,000, woran eine Durchschnitts-Zinsrate von circa 4 Prozent erzielt wurde.

Untersuchungen der Sterblichkeit in Australien haben ein günstigeres Resultat ergeben, als die der englischen Lebens-Tabellen, auf Grund deren die Raten calculiert und Abschätzungen vorgenommen werden.

Aerztliche Untersuchungen werden häufiger als in Gross-Britannien vorgenommen, doch nicht so oft, scheint es, wie in den Vereinigten Staaten von Amerika.

Fünf Gesellschaften befassen sich mit gewöhnlichem Versicherungs-Geschäft und haben 44,000 derartige Policen mit einem Betrage von £6,100,000. Das neue Jahresgeschäft dieser Art für diese Gesellschaften beträgt ungefähr £1,520,000 für 11,000 Policen, während die Fonds des gewöhnlichen Geschäftszweiges von zwei Gesellschaften mit besonderer Buchführung £911,203 betragen.

Obgleich das Gemeinwesen in Australien mit der Macht versehen ist, Gesetze für die Lebens-Versicherung zu geben, hat man nach dieser Richtung hin so weit noch keinerlei Schritte unternommen. In der Zwischenzeit müssen sich die Gesellschaften verschiedenen Verordnungen fügen in jedem australischen Staate und der Colonie von Neu-Seeland.

Die in einigen Staaten auferlegte Taxe ist wissenschaftlich nicht gerecht, besonders wenn auf industrielle Versicherung bezogen.

FRIENDLY SOCIETIES IN NEW SOUTH WALES.

BY

JOHN B. TRIVETT, F.R.A.S., F.S.S.,

Actuary of Friendly Societies, New South Wales.

The earliest record of the establishment of a Society of Men in New South Wales, which might legitimately be regarded as a Friendly Society in the modern acceptation of the term, is found in the history of the Australian Union Benefit Society, founded in Sydney, in April, 1834. The existent conditions at that time, when the Governor of the day wielded almost despotic power in what was then a Crown colony of Great Britain, were such that it behooved any body of persons desirous of forming an association, for whatever purpose, to be exceedingly careful and circumspect in their transactions; and for reasons, which will be made apparent subsequently in this paper, none of the organized associations, such as Foresters and Odd Fellows, with anything approaching secrecy in their transactions, had much encouragement to attempt the foundation of branches of their well-known Orders. Hence, the body above named, being of a neutral character, and without any of the mystery attaching to it which has so much charm for thousands of our fellow-citizens, holds the honor from fortuitous circumstances of being the pioneer of Friendly Society propaganda in this part of the world. For reasons which are readily apparent, the associated Friendly Society orders, which have since been established, have far outdistanced the Australian Union Benefit Society, which has now, as it then had, only one Society or Lodge, with a modest membership of some 220.

The first Act of Parliament to regulate Friendly Societies in New South Wales was passed in 1843 by the local Legislative Council of the Colony. By it the power was granted to persons to establish societies for the purpose of raising funds, by contributions or donations, for mutual relief in sickness, or any other natural contingency, whose occurrence might be susceptible of calculation by way of average, and to make rules for the government of such societies; but it was specifically enacted that no secret society having signs, passwords, etc., nor any trade society, should be entitled to the benefit of the Act. By the latter proviso many of our present-day Societies, which are of immeasurable benefit to the State, but which indulge in the harmless fancy of surrounding their operations with the mystical charm of secrecy, interesting to them and harming nobody, would be debarred from the advantages of the Act. The rules of these Societies had to be certified by the Attorney-General, or by a barrister, and lodged with the Clerk of the Peace. The advantages accorded under this Act were the legal recognition of trustees appointed by the Societies, the power to exact guarantees in respect of the safeguarding the funds operated upon under their trusts, arrangements for equitable dissolution of Societies with regard to vested interests, the appointment of arbitrators in cases of disputes, and the enforcement by local justices of awards made by such arbitrators.

The great defects of this measure were the entire absence of any provision for enforcing some correlation of the contributions of members to the benefits ordained in the rules; and, although it was enacted that quinquennial returns should be made as to the mortality and sickness experienced by each Society, yet no penalty was attached to the neglect of this duty, nor was any demand made for periodic statements as to the finances. No specific officer of State was named whose function it would be to supervise the administration of the Act, except incidentally the Colonial Secretary, an officer who, in New South Wales, is charged with a thousand other duties, in the active discharge of which it is easy to understand that the administration of a trust, only casually mentioned in an Act of Parliament, might, and would easily, be overlooked or ignored. Another and most significant provision of this Act, easily intelligible to actuaries as to its bearing on the aggregation of Funds, was the restriction of the avenues of investment of available capital to the Savings Bank of New South Wales, thus forcing the trustees to deal with the middleman rather than with his principal in any transaction, with manifest disadvantage to the Friendly Society interested.

The next enactment of the local legislature concerning Friendly Societies was passed in 1848, which formally recognized the disabilities attendant on this investment restriction, and extended the powers of trustees by permitting investments in Government or Corporate Securities, or by loans secured on real property.

A consolidating and amending law was passed in 1853, of which the following is a brief résumé: The objects, very widely embracing in their scope, are detailed at length. The Act was restricted to Societies assuring for not more than £100 at death, nor for an annuity exceeding £30 per annum, nor for a sum in sickness exceeding 21*s.* per week. No sum was to be paid on the death of a child, except for funeral expenses. Separate accounts were to be kept of money paid or received in respect of each particular benefit. The trusts were carefully conserved. The interference with the liberty of the individuals to indulge in secret signs and passwords in their Lodges was wisely abandoned. Provision was made for referring disputes to arbitration with recourse to local justices by way of enforcing awards, and for dissolutions of Societies. Registry of rules was effected, as under the previous Act, by lodging the rules, certified by the Attorney-General or by a barrister, with the Clerk of the Peace. The fatal defect was still continued of not instituting a specific office to watch over the administration of the Act, and the financial aspect was still ignored, in that no actuarial certificate was required as to sufficiency of contribution.

Twenty years later, in 1873, the law was again altered, mainly on the lines of the Statute of the British Parliament, enacted eighteen years previously. Among the advantages introduced were the following:

A Registrar of Friendly Societies was appointed to certify as to the accordance of the rules of the Societies with law, and his certificate was not to issue to any Society "assuring to any member thereof a certain annuity or certain superannuation, deferred or immediate, or any sum or sums payable as endowment, or in case of sickness or death or other object authorized by the Act, which is susceptible of calculation by way of average, unless the tables of contributions payable for such kind of assurance shall have been certified under the hand of an actuary of five years' standing." The objects for which Societies might be organized remained much the same as under the repealed Act. The maximum payments in sickness and for annuities were restricted to £1 per week, and

£52 per annum respectively, whilst the assurance at death was extended to a £200 limit. Other provisions were introduced which need not now be noticed; but, as if to paralyze all attempts at consolidation and extension on safety lines, there was absolutely no machinery provided for official supervision, and the potentialities under the actuary's certification clause were rendered nugatory by the fact that, although an actuary's endorsement as to sufficiency was required when registering the rules of a Society in the first instance, it was permissible for the Society to register any amendment (next day if it thought fit) altering the rates of subscription or of benefit, and these had to be accepted by the Registrar without any actuary's certificate whatever. The events which occurred within the interval which elapsed until the next revision of the law in 1899 were easy of prediction. The usefulness of the 1873 Act was marred by the defects just outlined. The members of the Societies seized with pleasure the means of protection at law which registration afforded, and with equal avidity rendered useless the actuarial provisions, by altering their rules as to benefits and payments as their individual opinions dictated, oblivious entirely to actuarial canons. The disastrous effects arising from this lax law are readily discernible when we consider the slow growth of membership and of funds, which I shall show later by comparative figures of other Australian States.

After eight years' experience of the 1873 Act, during which the defects of that measure had been made apparent by frequent complaints and adverse discussions on the part of those most intimately concerned, the Government in 1881 appointed a Royal Commission to inquire into its working. This Commission held a lengthy investigation, extending over some thirteen months, during which the various aspects of Friendly Society assurance were closely criticised. Here, for the first time within my knowledge, an attempt was made to bring the light of Actuarial science to bear on the problems which naturally appear in such an inquiry, and Messrs. Black and Teece, actuaries to the Australian Mutual Provident Society, conducted a series of valuations of the positions of the various Friendly Society orders, so far as the crude data placed at their disposal would admit. The results of these valuations, which I merely mention here in passing, disclosed so unfavorable a condition as to solvency in all cases, that in the words of the Actuaries, "any hope on the part of the Societies of fulfilling their obligations under the existing scales of contributions and benefits cannot be regarded as other than chimerical." The Commission disposed of this valuation in their report by merely submitting it, and stating that "we do not feel sure that we are called upon to make any further comment upon it," and concluded their report by presenting a Schedule of thirty-one recommendations, the principal of which from the actuarial standpoint are as follows:

The passage of a separate Act dealing with Friendly Societies.

The formation of a special office to attend to Society concerns.

The Government to construct tables of adequate rates.

The adoption of the principle of graduated contributions according to age.

The keeping separate accounts of the several funds.

Authoritative investigation of accounts.

Discontinuance of the levy system.

Compulsory furnishing of data for collecting sick and mortality experience.

Appointment of an Actuary in the Central Office; and conduct of periodic valuations.

These proposals, wisely conceived, were placed on one side, and no effective legislative action was taken to amend the law in the directions proposed for seventeen years. Meanwhile, in the year 1896, a comprehensive consolidating law of Friendly Societies was passed by the British Parliament, and relating to Societies established in the United Kingdom. This law, presenting all the enlightened provisions, which the experience of one hundred years' law-making and practical knowledge of the development of the Friendly Society system suggested to the wisdom of the legislator, offered an admirable basis, upon which the reformer in New South Wales could build an improved local system; and, in 1899, the hearts of earnest advocates of true advancement in this State were gladdened by the passage of the Friendly Societies' Act, which embraced in the *verba ipsissima* all the main features of the English law of 1896. Amongst them, not to make prolix repetition, are the amendments recounted above as having been proposed by the local Commission in 1882.

We now arrive at the period where, for the first time in the history of this State, the Friendly Societies have offered to them the oversight of the State in the conduct of their business, and in the safeguarding of their funds, collection of data as to membership, sickness and mortality experience, investigation of accounts, and, above all, expert advice on their financial concerns, and the actuarial oversight obtained by means of periodic valuations.

Under the new Act of 1899 a period of one year was allowed, wherein the Friendly Society orders might construct new rules, bringing their internal legislation into compliance with the requirements of the Act, and particularly in relation to the scales of contributions for proposed benefits. After that period the old rules would become obsolete by effluxion of time. These requirements at once opened up the vital question of adequacy of contributions, and the necessity for actuarial certification of scales of payments, and herein appeared the mischievous harvest of all the past years of neglect of actuarial principles. The old members, who, through the defects of the previous law, had possessed the power of deciding what contributions they should pay, and had developed into an attitude, either of indifference, or of bitter hostility to actuarial presentments, as an inevitable consequence, consented to the apportionment of adequate payments in respect of members who might enter in the future, but strongly protested against any interference, by way of increase, in their own rates of contribution, although the inference was obvious, that, if certain periodic payments were essential on the part of new members as at entry age, it had to be conceded, that equivalent payments were necessary on the part of the old members, who would enjoy the same benefits; nay, more, that having paid inadequate rates in the past, it was, strictly speaking, necessary that they should pay at rates in excess of the normal to counterbalance the deficiency of contribution in the past. Time and space are too valuable to dwell on the controversy which followed. The matter was ably represented to the Government by Mr. Coghlan, the Registrar of Friendly Societies, and eventually an Act of Parliament was passed in 1901 as a compromise, which, like all compromises must be, would appear from the Actuary's standpoint to be illogical.

Briefly, the conditions of the Amending Act are:

(1) That all Societies subsisting at the commencement of the Act of 1899 may be registered if provision be made for keeping separate accounts of contributions paid and benefits received by (a) old members, (b) future members.

(2) That the rates chargeable to old members must not be less than those formerly payable.

(3) That new members shall pay at actuarially certified rates.

Provided that such registration shall remain in force until the next quinquennial investigation when any Society may be again registered, (1) if it appears as the result of such valuation that the Society has improved its financial position in respect of persons, who were members at the last preceding registration; and (2) though it appears that the Society has not so improved its financial position, if the rules of the Society provide that the rates of contribution to be charged in respect of such members are such as an Actuary who has exercised his profession for at least five years certifies.

Such is the condition of the law at the present moment, and under the amended Act all of the Friendly Society orders in the State are now registered.

During the years which elapsed from the foundation, in 1834, of the first Friendly Society of which I have record, until the advent of the first enacted law of 1843, there was very little energy or progress visible amongst the population in the direction of combined action for provident purposes. There was at the first-named date a population in the whole State of 61,000 souls. In the years 1840-50 some of the orders of old establishment in England began to appear, amongst them being the Odd Fellows (Manchester Unity and Grand United Orders) and Foresters. There was also of purely local institution the Catholic Guild. These have been followed at various intervals by branches of other Old World Societies, such as the Druids, Independent Order of Odd Fellows (of American origin), Rechabites, Free Gardeners, National Order of Odd Fellows, and by Societies of local origin such as the Hibernians, Protestant Alliance, Sons of Temperance, and Australian Natives.

Inasmuch as the earlier laws were so defective, and the means of administration so meagre, it will readily be apparent that laxity in the forwarding of returns (and even wilful omission to do so) would be experienced to a considerable extent, and such was the case. I have attempted to obtain records of the past as to numerical and financial strength, and have succeeded only to a very slight degree. Some comparisons from this aspect will be presented subsequently in this paper. Having their origin for the most part from the Friendly Society affiliated orders of England, it happens, as might reasonably be expected, that the societies in this State present the same features in their financial policy and methods which characterized their forebears. The sickness liabilities are borne by the individual lodges, and the death assurance ("funeral benefits," as it is popularly known) is provided from a central fund raised by periodic (generally quarterly) per capita payments from each lodge. Other expenses, such as the charges for medical attendance and drugs, are defrayed by each lodge according to its local arrangements. In the early days, and, in fact, until very recently, the customary method was to charge a uniform contribution, irrespective of the age at which the member might enter the Society; and despite the considerable variation in the types and amounts of benefits provided in the rules of the several Societies, the contributions quoted in nearly all cases were about the same, generally one shilling per week, or slightly more. As a safeguard there was power to levy additional revenue by resolution of the lodge, as occasion might require a subvention to be applied to any of the funds. Another species of safeguard as to solvency was substituted in

some of the Societies by requiring an entrance fee, graduated according to age at entry.

It is unnecessary for me to discuss the soundness or otherwise of a uniform rate of contributions before an expert body, such as this Congress. The types of the system indicated above can be defended theoretically, the levy system or its complement (reduction of benefit) to a certain degree, and the graduated entrance fee system generally; but in practice, they are both dangerous, and the disinclination of members to proceed to the required remedial degree would in either case render the necessary adjustment impossible. As time wore on, the Societies were induced by Mr. Coghlan (who had assumed the control of the Registry Office in the year 1893, and who, as far as a defective Act permitted, brought actuarial principles to bear on the financial concerns of the Societies) to come to something like an approach to the safe system of graduating the payments according to entry age, but the limited powers conferred by the Act prevented anything in the nature of enforcement of the obvious remedies, and improvement to any material degree was, in general, a forlorn hope.

I now propose to set forth some of the principal benefits for which the Orders provide, with such brief remarks as may, in general, serve to elucidate their meaning, to indicate their treatment of the corresponding payment, and to suggest improvements in arranging both benefit and payment.

The following are types of the benefits which prevail amongst Friendly Societies.

In the sickness list I quote only the periods for which benefits are paid, since the amount payable for each period, being immaterial to the purpose of this paper, may be disregarded, inasmuch as we are discussing methods rather than measures of those methods. It will be sufficient to observe in this connection that the amounts for the second, third, or other period are fractional parts of the amount for the first period, diminishing as the period of sickness is further protracted, but constant during the currency of each period.

SICKNESS BENEFIT

Males—type	First period	Second period	Third period	Fourth period	Fifth period	Total period of benefit
1	6 months	3 months	3 months	.....	.....	12 months
2	3 "	3 "	3 "	3 months	3 months and benefit may then be withdrawn	15 "
3	6 "	6 "	During pleasure	.....	.....	(say) 24 "
4	6 "	6 "	6 months	During pleasure	.....	(say) 24 "
5	6 "	6 "	12 "	.....	.....	24 "
6	12 "	6 "	6 "	.....	.....	24 "
7	6 "	3 "	3 "	All after	.....	Until recovery
8	6 "	3 "	3 "	2 years	Kept financial	" "
9	6 "	6 "	6 "	All after	.....	" "
10	6 "	6 "	6 "	6 months	All after	" "
11	6 "	12 "	6 "	All after	.....	" "
12	12 "	6 "	6 "	All after	.....	" "
Females						
1	15 weeks	15 weeks	.....	.....	.....	30 weeks
2	15 "	15 "	1 year	During pleasure	.....	(say) 2 years
3	15 "	15 "	All after	.....	.....	Until recovery
4	4 months	4 months	All after	.....	.....	" "
5	6 "	6 "	6 months	.....	.....	18 months
6	6 "	6 "	6 "	6 months	All after	Until recovery

From the foregoing it is apparent that a great variety of benefits are offered by the Friendly Societies, ranging from a twelve-months' possible term to the vague period expressed by the words "all after," the money values of which would vary very considerably. It is, therefore, evident that the popular cry for a uniform charge of contribution amongst members of Friendly Societies is futile, unless a material modification be made in the existing benefit conditions.

The relative weight of liability in any of the constituent systems, above stated, is found in general by comparing the quotations in the first period with one another, and also those in the final column; since the amount of sickness experienced in, say, the second, third, or fourth six months is but trifling compared with that in the first six months or in the "all after" stage. The following table gives the value of future sickness at one per week for the indicated terms:

Age	First 6 months	Second 6 months	Third 6 months	Fourth 6 months	All after	All sickness
20	25.38	3.56	2.38	1.73	14.11	47.16
25	26.21	4.02	2.71	1.98	16.70	51.62
30	27.28	4.53	3.11	2.28	19.72	56.92
35	28.37	5.14	3.57	2.61	23.26	62.95
40	29.41	5.84	4.10	3.00	27.44	69.79
65	28.81	10.21	8.14	6.12	69.22	122.50
70	24.98	9.87	8.50	6.39	83.24	132.98

The figures are derived from Sutton's Tables, with 3 per cent. interest.

If now we take the system of benefits—six months' sickness at £1 per week, next six months at 15*s.*, six at 10*s.*, and remaining sickness at 5*s.*—we get, from the figures above, the following table of relative cost in each period of time:

Age	First 6 months	Second 6 months	Third 6 months	Fourth 6 months	All after	Total cost
20	76.5%	8.0%	3.6%	1.3%	10.6%	100.0
25	74.4	8.6	3.8	1.4	11.8	100.0
30	72.3	9.0	4.1	1.5	13.1	100.0
35	70.1	9.5	4.4	1.6	14.4	100.0
40	67.7	10.1	4.7	1.7	15.8	100.0
65	48.5	12.9	6.9	2.6	29.1	100.0
70	42.3	12.5	7.2	2.7	35.3	100.0

It is at once seen that the sickness proportions shown in columns 2 and 6 are the most considerable. With regard to column 2, it would seem that this sickness is of far more moment to any Society than the whole of the rest of the sickness for the earlier ages of life, and even up to age sixty-five, and that consequently the various modifications of a Society's benefit up to that period, as delineated in the first table above for second, third, and fourth six months, might well be disregarded in comparison with the consideration which should be given to the first period; and so long as a fairly generous provision is allowed for the initial benefit, that rate of benefit could be continued even up to a two-year period without materially increasing the liability of the Society.

No doubt the system which prevails of reducing the benefit periodically serves in practice to discourage the malingerer, hence the adoption of this plan.

After the first sickness cost, that shown in column 6 is of the most serious concern, and perhaps has received least attention at the hands of the Societies in past years. The rate of pay for this term is usually a great reduction on the first rate, in most cases one-quarter, and a modest five shillings a week for this period has in the past too greatly obscured

the issue arising from this phase of sickness benefits. But it is seen that the cost at entry age twenty in the sample table of benefits is slightly less than 11 per cent.; and increasing more rapidly in relative cost than any of the values except that of the first period, becomes very considerable after age forty, and in the ages higher than sixty-five represents at least 30 per cent. of the cost. This shows that by deleting this item of continuous sickness after two years' illness, a large difference will be apparent in the valuation of the sickness of a Society working under the above specimen scale; and that, as a consequence, the contribution scale of such a Society is largely affected thereby.

The Friendly Societies are beginning to realise this fact, which it must be admitted was dimly perceived in past years, but only in a general way, and without clear perception of the exact trend shown by the figures. The prudent members, after consideration of the position, have resorted mainly to two methods of alleviating the burden thus appearing:

First, by adopting a money limit beyond which the benefit shall not be extended, and which, when reached, will terminate the sickness privileges of the member as far as the Society is concerned.

Second, of limiting the sickness period to a definite aggregate term, such as eighteen months, two years, or three years.

The first has serious disadvantages, in that the incidence of the sickness dependent on an aggregate sum of money paid to the individual member is extremely uncertain in the light of our limited experience in that direction, and that the interference with the other benefits, such as life assurance, which are usually granted coincidently with sickness, is a distinct bar to its adoption.

The second plan seems to be the preferable, as it has an easily determinate value, the incidence is known, and the member can readily save the situation as far as he is concerned by declaring off the funds when his time limit is discernible, which contingency is far more easily apparent to him than would be the money limit.

A further means of lightening the burden of the Society, as regards the extended sickness, is provided by the evolution of modern legislation in the shape of the old-age pension system. Each Society could go the length of permitting the benefits to extend to all sickness, without limit as to *length* of sickness, if the provision for termination of all sick allowance at age sixty-five were adopted; and then be in a decidedly better position than under any system now in force which admits of extension beyond that age, since the bulk of the after sickness cost would commence about or after the age of sixty-five. Whether the cost of the pension be paid by the Society or by the State, the natural course would seem to be to adopt a pension plan instead of a sickness system for extreme age.

Funeral Benefits.

Type of assurances:

Males Type.	At death of		
1.	member,	wife	(survivorship of husband)
2.	"	"	second wife, widow
3.	"	"	" " "
4.	"	"	" " " children under 14.
5.	"	"	" " "
6.	"	"	(separate ass'ce) or widowed mother of unmarried member if supported by him.
7.	" or on reaching given age	"	"

These assurances are of fixed amounts, or increasing at given intervals of time, the practice varying in different Societies. The endowment assurance, as in number seven, has become more popular of late years.

Females Type. On death of
1. member
2. " husband (survivorship of wife).

Juvenile Type. On death of
1. member
2. " or on reaching given age.

The children's endowments, as in 2, are also more in vogue than formerly. With respect to these types of benefit, I propose to say little at present, beyond noticing the variety of benefits offered, and the mode of payments; the latter I shall discuss in connection with the system of contributions.

To the system of the deferred assurances generally adopted, of increasing the benefit according to the number of years' membership enjoyed, I see no objection; but it is surprising that it has not previously been urged by the members of the Societies themselves that they all pay the same premium, and should receive the same funeral allowance. This would only be in keeping with the argument which has often been used by the members in connection with sickness benefits, viz., that, as all receive the same rate of sickness pay, they should not be called on to pay contributions on a scale graduated according to entry age; and reflection on their usage in regard to funeral benefits might lead them to modify their views as to sickness contributions. The adoption also of a system of endowment-assurances opens up a wide field for discussion into which I do not wish to enter now, and no doubt the development of this class of business in the hands of the Friendly Societies will be watched with much interest. The system of endowments of small amount for children is admirable, a stimulus to thrift on the part of the parents, and an object lesson to the child which should produce useful results in his later years.

Contributions.

There are four ways by which, in general, the benefits and contributions may be arranged:

(1) Constant benefit for all entry ages, with single payment.

(2) Constant benefit, with uniform periodic payments for all members, subject to an entrance fee graduated as for entry age.

(3) Constant benefit, with periodic payments, graduated as per entry age.

(4) Benefit graduated as for entry age, with uniform periodic payments for all members.

The first mode is impracticable for most of the benefits provided by the Societies, since the means of the members would not, as a rule, admit of its adoption, and this method is very properly left to institutions which treat of larger individual assurances. There is one class of benefit, however, to which it might be applied with great advantage, viz., the wife's and widow's assurance, in which a small single payment would provide the modest funeral benefit usually declared in the rules, being mostly for a very young entry age of the wife. Of this I shall treat later.

The second method appears very desirable at first sight, inasmuch

as it provides that the same rate of payment shall be made by all members alike, and would thus get rid of the frequent source of complaint amongst Friendly Society members that some are charged higher rates than are the others. It has the disadvantage in practice of frequently putting into the hands of the Societies considerable sums in the shape of entrance fees, and the fact would often be overlooked that these fees represent the realized assets, which under other conditions of payment would be spread over future years. The large amounts thus annually receivable would mislead the minds of the members into the false belief of a superabundant prosperity; extravagance might be induced, and the educational process in Friendly Society finance, which it is hoped will be evolved in the future, would be greatly retarded.

The third system is now in almost universal force in Friendly Societies. It does away with the old and unsound method of uniform payments, which were irrespective of age conditions, and from the practical point of view would seem to be most advisable, and has been found to work very well. The members soon learn that every penny that can be saved and accumulated must be so treated. No false impression of exuberant prosperity, fostered by the glamour instilled by the receipt of numerous entrance fees, is induced; and the proper conception of the duty of joining a benefit lodge at an early age is continuously impressed on the minds of the members (and, through them, on their outside friends) when they are constantly reminded in that direction, in having to pay higher rates than their neighbors, through neglect of the opportunities of joining in their youth. This is the individual application of the lesson which, in the case of entrance fees, would be patent only to the officials of the Society.

The fourth mode is in vogue to a very small extent, but the prospect of receiving smaller benefits through age considerations, although paying the same contribution, whilst perfectly sound, is not alluring to the untutored mind; consequently a Society adopting this type of contribution is not likely to become popular.

There is one phase of the payment for funeral benefit which deserves attention, and possibly improvement may be effected by altering the current system. I refer to the wife's or widow's benefit. In almost all Societies the practice is observed of making the receipt of benefit in respect of the wife's death contingent on the survivorship of the husband; and in many Societies, as a set-off, on the death of the husband, she is allowed to contribute a small sum, generally all too small, and thus to continue the benefit. The effect in practice, since few widows avail themselves of the latter privilege, is to deprive a woman of the advantage, modest though it may be, of that which, throughout her years of youth and health, she had always fondly believed was safely provided. To obviate this failure of what should prove a useful and valuable source of comfort, mental, if in no other aspect, to the aged widow, an easy solution presents itself. Taking the average age at marriage amongst Friendly Society members as twenty-five, the age of the wife would probably be twenty-one, on the average, and the payment down of a sum of about £3 would provide a benefit of £10 payable on the death of the wife, without any restriction as to the survivorship of the husband. In this case, the woman's benefit would be effectually assured, and no possibility of loss on account of intervening hard times could disturb the mind of the beneficiary. Her husband would pay for this benefit at the period when he could best afford to do so, and probably when his inclination would be strongest. This plan would also remove the discontent of the single

man, who, according to the rules generally adopted, has to pay just as much as does the married member. In one Society the plan of separate assurance for the wife is in force, with the exception that the payments are spread over the woman's life, and as far as I can observe, has admirable results. It need hardly be mentioned that the single payment need not necessarily be made at marriage; a female life could be assured at any time, just as a man may register his wife for the wife's funeral donation at any time under present conditions.

Another matter deserving attention before quitting these notes is to be found in the system of levies, which has frequently been mentioned in Friendly Society discussions.

A levy, in the correct acceptation of the term, is an extraordinary contribution exigible to meet special financial requirements, such as the necessities arising from a severe depletion of lodge funds. In former years the provision for a levy was frequently enforced, because under the very low scales of contributions of the Societies in the pre-actuarial days, and with the laxity of management as compared with the advanced methods of modern Friendly Society executives, the finances of the lodges were often reduced to a very low ebb, and the need of remedial measures became apparent to the most unwilling mind.

I do not propose further to discuss the levy system, which I have previously touched upon, and which is freely admitted to be the most dangerous and impracticable. But I wish it to be clearly understood that the system has now been entirely abandoned. The benefits are always specifically stated, and the periodic payments chargeable to the members are equally clearly expressed in the rules; consequently any notion that a system of levies exists in any Society, by which heroic treatment may be devoted to the removal of extraordinary deficits in benefit funds, is erroneous.

The management expenses of the lodges are met by an assessment annually declared and payable by the members; but this is not analogous to the levy system properly so called, being of almost as uniform a character, as to amount, as the benefit charges which are specified in the rules.

I have already referred to the scanty information available as to the statistics of the Friendly Societies in past years. The earliest authentic figures I have been able to obtain relating to all the Societies in the State are for the year 1879; and, for the period intervening from that year to 1893, I have in vain looked for further statements. The figures of a reliable nature relating to New South Wales, for several years, are given in the subjoined table:

Year	Male population over 20 years old	Financial members	Total funds	Members per 1000 of available population	Funds per member
1879	204,837	25,209	£115,880	123	£4.60
1893	349,761	63,045	491,777	180	7.80
1895	360,280	61,357	542,364	170	8.84
1897	371,391	63,074	596,463	170	9.46
1899	383,146	63,799	659,762	172	10.34

Amongst the members enumerated above are a number of females, but these are not of sufficient volume to materially disturb the ratio per male population of Friendly Society age, adopted as a basis of numerical comparison.

The male population above age twenty existent in the State has been taken as the standard, because it represents the possible constituency

from which the membership would be recruited, and, although an improvement is noted of 50 per cent. between 1879 and 1893, there seems to be a stagnation point of 170 per 1,000, beyond which the numerical strength does not proceed. And, without attempting to ascertain the exact population of adult males poorly enough endowed in worldly possessions to make a Friendly Society benefit a welcome boon in sickness and at death, it will, I think, be readily conceded, that 170 per 1,000, or one in six, by no means represents the ratio of the exposed population, which might naturally be expected to seek such benefits. The reason of this small proportion might, in some degree, be ascribed to the unwise negligence of the young whilst they are in robust health, but, in my opinion, the explanation may also be found to a large extent in the absolute inability of many, who are aged, to retain their membership on account of their reduced circumstances. This, at once, brings to the mental view the problem of modern times as to the provision of a pension system for old age, and incidentally, the necessity of recasting the whole Friendly Society system, so as to render all benefits and all payments terminable at some period of life, which might be taken as the border line between the days of earning and the days of rest.

In this State, the institution of the old-age pension system, the benefits of which commence at age sixty-five, will, I have no doubt, be a large factor in modifying the Friendly Society conceptions and administration in the near future.

The column relating to the value of funds per capita has been introduced, not for its intrinsic value, but for comparative purposes. It need hardly be stated in an assembly of actuaries, that no more misleading nor delusive method of gauging the financial position could be adopted, since, in two institutions with the same conditions of membership, and having the same assets per head, but widely different age compositions, the degree of solvency might widely differ. But for the comparison of the advance made over a period of years, the table has its use. The benefits have not varied, and the age incidence has been practically the same during the last ten years. The deducible moral, therefore, is that, even under the lax law which has prevailed, given enlightened oversight, which will attempt to point out errors in policy and pitfalls in management, some degree of improvement must become apparent. Such management, certainly, has characterized the years since 1893, and the results are in evidence in the advance from £7.8 per member at the beginning of the decennium, and £10.3 the latest quoted amount.

If, however, we turn our eyes to the results obtained by Societies in the neighboring States, derived from the same parent orders, offering the same or very similar benefits, and consisting of similar constituent members as to age, we find that New South Wales fares very badly in the comparison.

The following table shows, as at December 31, 1897, the relative positions of the orders as to members and accumulated funds in the States of New South Wales, Victoria, and New Zealand.

The comparison is valuable, as indicative of the results arising from the influences at work under efficient oversight provided by the superior enactments in the States of Victoria and New Zealand, for years past, in respect of bodies based on the same fundamental lines, the various orders being shown in contrast in the three States.

In the two States just named, although much good work has been done, and progress towards a higher financial status achieved, there is still room for improvement, and perfection has yet to be reached. Con-

FRIENDLY SOCIETIES, 1897.

Comparison of Different States.

Order	New South Wales			Victoria			New Zealand		
	Male population: Aged 20 years and upwards 383,573			Male population: Aged 20 years and upwards 333,558			Male population: Aged 20 years and upwards 219,645		
	Financial Members	All Funds	Funds per Member	Financial Members	All Funds	Funds per Member	Financial Members	All Funds	Funds per Member
		£	£		£	£		£	£
Aust. Holy Cath. Guild	1,326	16,746	12.63	.....	.....	.....	.....	.....	.....
Ancient Order Foresters	4,789	34,216	7.15	10,087	134,037	13.29	9,478	163,503	17.25
Australian Natives' Association	....	.....	.....	8,771	87,505	9.98	.....	.....	.....
Grand United Order of Odd Fellows	8,455	82,971	9.81	2,759	52,725	19.11	.....	.....	.....
Grand United Order of Free Gardeners	1,571	4,497	2.86	1,196	13,287	11.11	.....	.....	.....
Hibernian Catholic Benefit Society	1,690	10,999	6.51	3,852	29,028	7.54	699	11,306	16.18
Irish National Foresters	235	1,097	4.69	405	2,560	6.32	.....	.....	.....
Independent Order of Odd Fellows	4,438	41,884	9.44	5,222	100,114	19.17	1,371	27,893	20.35
Independent Order of Rechabites	1,598	11,318	7.08	8,171	145,152	17.76	1,531	32,847	21.46
Protestant Benefit Society	732	3,217	4.40	.....	.....	.....	.....	.....	.....
Manchester Unity, I. O. O. F.	17,700	240,879	13.61	18,961	397,699	20.98	12,892	333,972	25.91
National Independent Order of Odd Fellows	610	2,161	3.54	.....	.....	.....	344	3,574	10.39
Order of Royal Foresters	1,711	25,952	15.17	.....	.....	.....	.....	.....	.....
Protestant Alliance Friendly Society	5,609	52,476	9.36	956	14,953	15.64	668	9,585	14.35
Sons of Temperance	2,888	22,786	7.89	2,002	32,523	16.25	776	7,917	10.20
Ancient Order of Druids	5,685	28,713	5.05	6,750	91,970	13.63	4,581	41,166	8.99
Other Societies	4,037	16,551	4.10	2,112	42,080	19.90	330	5,249	15.91
All Societies	63,074	£596,463	£9.46	71,244	£1,143,633	£16.05	32,670	£637,012	£19.50

sequently, if under these circumstances a degree of solidity has been attained in Victoria and New Zealand as shown in the table by the amount of funds amassed, it must be perceptible that the New South Wales Societies have much yet to do, before their affairs can be regarded with complacency.

The method adopted in the table just given is popular amongst Friendly Society members, and the figures displayed in the table may prove of value in appealing to the minds of others than the members of this Congress. But the mode is crude, since it only tells part of the story of the finances, for we require the counterpart in the shape of the values of the assets and liabilities in respect of the future operations of each Society; and in the absence of this information, we are unable to say whether the funds per member are, in any case, a sufficient reserve to balance the account.

The only truly convincing test of soundness is obtained by gauging all the assets, accumulated and prospective, and the liabilities, in other words, by means of a valuation.

The valuation, which was made in the year 1882 by Messrs. Black and Teece, related to the Societies from which they were able to collect data per medium of the Royal Commission then sitting; but, on account of the feeble control over the Societies as to enforcing returns of information, the actuaries, perforce, had access to the particulars concerning only 15,259 members out of an estimated total of 30,000; and, in the results submitted as the outcome of their investigation, we have the first explicit presentment of the position of Friendly Societies in New South Wales. The following is a summary of the valuations, as at December 31, 1881, which were effected on a 4 per cent. interest basis.

SUMMARY OF VALUATIONS AS AT 31 DECEMBER, 1881, 4 PER CENT.

NAME OF ORDER.	No. of Members.	Liabilities.			Assets.						Deficit.			Deficit p. c. of Liabilities.
					Future Contributions.			Funds.						
		£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	
Ancient Order of Foresters	1,355	58,172	10	0	31,115	2	0	8,691	16	7	18,365	11	5	31.6
Grand United Order of Odd Fellows	3,584	127,174	8	0	81,449	10	0	14,455	2	6	31,269	15	6	24.6
Manchester Unity Order of Odd Fellows	6,906	309,282	6	0	162,302	10	0	36,265	1	11	110,714	14	1	35.8
Protestant Alliance Friendly Society	3,414	133,990	2	0	97,508	4	0	14,242	19	1	22,238	18	11	16.6
Total	15,259	628,619	6	0	372,375	6	0	73,655	0	1	182,588	19	11	29.0

These results display a very serious deficiency in every case, and speak very distinctly without explanation.

The only other valuation extending over any material percentage of the Friendly Society orders was made by myself during the controversy which preceded the legislative compromise, previously noticed in this article; and, on account of the very brief period available for the purpose, had necessarily to be confined to the affairs of each Order as a whole, instead of including the separate valuation of the individual lodges, some of which, I have no doubt from personal experience, would disclose a surplus, such surplus being, as a rule, due to adventitious aid, rather than to sufficiency of premiums which in the vast majority of cases were too low. The following table gives the results of my valuation.

I leave this Summary to the consideration of members of the Congress without further comment.

Since this valuation was effected, it has fallen to my lot, in my official capacity, to examine and certify to the adequacy of the contribution scales of all the Societies, prior to registry under the new law of 1901; so that, as far as all future entrants are concerned, we have made the important advance of ensuring a proper relationship between their benefits and payments. What will happen with regard to those who are included in the above valuation, and who, under present conditions, are permitted to continue paying at their old rates until the next quinquennial investigation, the course of time will reveal.

I have now briefly noticed all the important actuarial considerations in connection with the Friendly Societies of this State, excepting one, which is by no means the least. I refer to the investment powers of the Societies, and the interest-earning capacity exhibited by the executives of the various Orders. In discussing this question, it will be unnecessary to explore further into the past than to the year 1873, at which date the law came into force, which, for twenty-six years, controlled the destinies of the Societies, since the main expansion of these institutions has occurred during that period.

By the law of 1873, trustees were permitted to invest in any class of security they wished, not being the purchase of house or land (the Society's hall or business place excepted), and not being joint stock companies' shares, nor on personal security, except to a member of one year's standing under severe restrictions. A little reflection will show that a fairly large field of investment was thus available but, excepting the deposit of funds in Savings Banks and the building of halls, very little advantage was taken of the powers thus conferred, and I have known instances where the monies of a lodge were allowed to lie at current account with the banker, earning no interest whatever.

The advantages obtained by depositing at interest with Savings Banks were largely seized at the early part of the currency of the 1873 Act because a liberal rate of interest was earned, reaching above 5 per cent. per annum; but, during the last dozen years, in common with all the financial world, New South Wales has experienced a continuous fall in the rate, until, at the present time, 3 per cent. cannot be obtained on any considerable deposit. The building of halls also attracted the attention, and to a large extent secured the favorable opinion of trustees; but in very many instances, after meeting the various incidental charges and keeping the property on foot, the net return has been so meagre as to provide but little revenue on the investment, very seldom reaching the rate receivable from the Savings Bank. Mortgages and sound municipal securities were almost entirely disregarded. Under these conditions, it

SUMMARY OF VALUATIONS AS AT 31st DECEMBER, 1899, 3 PER CENT.

NAME OF ORDER	Number of Members	Present Value of Liabilities for Sick and Funeral Benefits	ASSETS		DEFICIENCY					INTEREST EARNED DURING 1899		
			Balances Sick and Funeral Funds	Present Value of Contributions to Sick and Funeral Funds	Amount	Ratio per £1 of Liabilities		Ratio per £1 Assets to Liabilities		Sick and Funeral Funds	Management Funds	All Funds
	1	2	3	4	5	6		7		8	9	10
		£	£	£	£	s.	d.	s.	d.	%	%	%
Irish National Foresters	284	12,191	1,795	9,675	721	1	2	18	10	0.88	....	0.88
Independent Order of Rechabites	2,173	82,752	14,263	60,467	8,022	1	11	18	1	5.19	0.48	4.87
National Independent Order of Odd Fellows	1,076	43,350	3,210	35,530	4,610	2	1	17	11	2.23	....	2.04
Independent Order of Odd Fellows	5,552	259,848	44,757	167,527	47,564	3	8	16	4	2.59	2.35	2.58
Ancient Order of Foresters, New England Dist.	326	19,092	967	14,190	3,935	4	2	15	10	1.77	0.90	1.75
Hibernian Australian Catholic Benefit Society	2,394	118,617	11,948	77,776	28,893	4	10	15	2	2.73	1.68	2.65
Order of Royal Foresters	1,952	108,889	17,023	63,944	27,922	5	1	14	11	3.04	3.31	3.07
Australian Holy Catholic Guild, Parramatta	143	8,422	1,998	4,133	2,291	5	5	14	7	3.30	....	3.30
Australian Holy Catholic Guild	920	50,458	7,246	28,828	14,384	5	8	14	4	0.28	1.93	0.37
Grand United Order of Odd Fellows	9,261	501,882	82,033	263,136	156,713	6	3	13	9	2.72	2.67	2.71
Australian Union Benefit Society	224	12,376	4,826	3,592	3,958	6	5	13	7	4.73	....	4.73
Manchester Unity Ind. Order of Odd Fellows	19,726	1,348,884	215,235	692,233	441,416	6	7	13	5	2.61	2.04	2.51
Sons and Daughters of Temperance	3,521	113,548	16,148	56,899	40,501	7	2	12	10	2.69	2.10	2.56
Grand United Order of Free Gardeners	1,858	89,038	4,857	51,967	32,214	7	3	12	9	2.79	0.39	2.48
Protestant Alliance Friendly Society	6,132	357,666	52,638	169,862	135,166	7	7	12	5	3.43	0.57	3.28
Loyal Protestant Benefit Society	741	26,431	2,526	13,804	10,101	7	8	12	4	2.91	1.70	2.59
Ancient Order of Foresters (Sydney District)	3,951	219,506	24,433	107,772	87,301	7	11	12	1	2.91	1.17	2.87
Protestant Union Benefit Society	74	3,889	1,009	1,154	1,726	8	11	11	1	5.37	....	5.37
Australian Odd Fellows' Union	622	33,150	2,825	14,739	15,586	9	5	10	7	2.30	....	2.16
United Ancient Order of Druids (Sydney)	5,871	313,767	20,172	141,186	152,409	9	9	10	3	2.62	1.77	2.49
United Ancient Order of Druids (Newcastle)	1,035	61,300	7,085	22,186	32,029	10	5	9	7	3.35	0.86	3.26
Old Protestant Alliance Friendly Society	147	9,957	716	2,872	6,369	12	10	7	2	2 80	3.56	2.98
Totals	67,983	3,795,013	537,710	2,003,472	1,253,831	..	..	..	..	....	....	....

NOTE.—The important Order of Australian Natives, which is not included in the foregoing list, has been established in a few months only, and its scale of contributions has been accepted and registered as adequate to meet all probable obligations. A 4 per cent. interest rate was adopted for the Rechabite Order.

is not surprising, that the low rates of interest, tabulated in the above valuation Summary, have been experienced in the Societies' transactions. Of the three Societies appearing in that list as earning more than 4 per cent., two are comparatively small in numbers and in funds, and have had exceptional circumstances in their management enuring to their advantage, and securing their high rates. The third has departed largely, and wisely, from the methods followed in general by other societies, and has turned its opportunities to the best advantage. The trend of the investments for the year 1897 (from the last report under the old Act) is seen in the following statement:

Type of investment	Per cent of funds invested
Savings and other banks	62.6%
Halls and freeholds	19.7
Mortgages	9.6
Not bearing interest	6.6
Others	1.5
	100.0

Under the law, as it now stands, the avenues for investment are opened to trustees as liberally as could be desired consistently with proper restriction against recklessness. They are as follows:

Deposits in Savings Banks.
Government Funds.
Purchase of land.
Erection of buildings.

Any other security expressly directed by the rules of the Society, not being personal security except with respect to a loan fund, formed with severe restrictions, within the Society.

The attention of trustees having been seriously arrested by the force of circumstances arising out of the drop in the interest rate in their former methods of investment, there is now a widespread change of policy in the disposition of their trusts. Mortgages of sterling type are eagerly negotiated, as are also other securities never previously regarded seriously. In consequence, according to the latest returns available, those for 1900, we find that the disposition of the funds exhibits a tendency toward an improved policy, shown in the following investments:

Savings and other banks	63.9%
Halls and freeholds	16.3
Mortgages	12.7
Not bearing interest	6.2
Others	0.9
	100.0

We may, therefore, fully expect, with the awakening of the trustees by the educational events of recent years, that in the near future a much brighter outlook from this very important aspect will be reported.

I have written these remarks not with any intention of finding fault in a captious spirit, nor of imputing blame, if any, for the present backward position of Friendly Societies in New South Wales; but rather with the idea of considering frankly the position of these institutions from the actuary's standpoint, having regard to the advantages or defects apparent in the legislation relating to such bodies, during the period in which the various Orders have been a considerable entity in the social life of this State. The thousands of good citizens, who for many years, with limited opportunities and little of the light of science, have nobly labored in the development of these organizations, are deserving of the

highest praise of their fellows for the results achieved. We have now arrived at the stage when every opportunity for progression on sound lines has been rendered available by the Government of the State. A Registrar with ample power and proved capacity has assumed the administration of the law, machinery has been provided for the expert analysis of all the financial concerns of the Societies, and for the collection of data whereby the basis of the subsidiary calculations may be established; in short, everything possible has been done to ensure light and guidance to those engaged in the great work of developing one of the most worthy and beneficial institutions of modern times. In submitting this account of the progress and present state of the New South Wales Friendly Societies to the consideration of the members of the Congress, I trust that it may prove not unworthy of their attention.

RÉSUMÉ.

SOCIÉTÉS DE SECOURS MUTUELS DANS LA NOUVELLE GALLES DU SUD.

Par John B. Trivett.

Commencement du système des sociétés de secours mutuels dans la Nouvelle Galles du Sud en 1834.

Conditions sociales de l'État à cette période.

Première législation sur les sociétés de secours mutuels — Premier acte du Parlement en 1843 — Portée, élargissement graduel et libéralisme de la législation — Conditions d'enregistrement des sociétés — Privilèges et avantages conférés — Restrictions, des avantages et défauts.

Seconde loi promulguée en 1848. Extension des pouvoirs de placement.

Acte de consolidation de 1853.

Nouvelle loi passée en 1873 d'après les lignes de l'acte anglais de 1855. Premier règlement pour la surveillance actuarielle — Défauts radicaux.

Commission royale d'enquête nommée en 1881 — Enquête durant 13 mois — Premières évaluations actuarielles effectuées — Conditions d'insolvabilité mises à jour.

Rapport de la commission — La formation d'une surveillance spéciale officielle des sociétés favorisée; citation autorisée de tables de taux; adoption du principe des contributions graduées selon l'âge; comptabilité séparée par des fonds séparés et investigation des ces fonds; cessation du système de paiement par cotisations; rapports obligatoires de maladies, décès et autres éventualités; nomination d'actuaires et provision pour des évaluations périodiques.

Pas d'action prise jusqu'en 1899 vote d'une nouvelle loi, modelée sur l'acte anglais de 1896 qui confère des pouvoirs entiers renfermant toutes les recommandations précédentes. Dénonciation de la procédure subséquente pour rendre le nouveau règlement effectif parmi les sociétés. Résistance des vieux membres contre l'augmentation des paiements. Compromis passé par un amendement à l'acte du Parlement 1901, qui donne aux vieux membres le droit de payer les anciens taux suffisants, et la matière devant être reconsidérée après cinq ans au point de vue d'une nouvelle évaluation à faire alors.

Évolution du nombre des membres des sociétés de secours mutuels, peu d'exactitude des rapports, pratique financière et méthodes de la première période.

Types des bénéfices de maladie offerts — Périodes de maladie — Leur coût relatif — Traitement de la question par les sociétés lorsqu'elles réalisent la question incidente de la responsabilité des patrons.

Types des bénéfices pour funérailles.

Contributions — Discussion de méthodes possibles et de leur popularité relative — Suggestions et objections — Condamnation des cotisations — Dépenses d'administration.

Statistiques comparatives du nombre des membres et des fonds — Remarques à leur sujet — Pension de vieillesse — Chiffres d'autres États — Revue synoptique.

Évaluations qui ont été faites des affaires des sociétés, d'abord par MM. Black et Teece en 1882 — Leurs résultats Ensuite par l'auteur en 1901 — Leurs résultats.

Approbation de la juste proportion des échelles de contribution des sociétés d'après l'acte de 1899. Toutes les sociétés opèrent maintenant d'après ces échelles.

Pouvoirs de placement et pouvoirs de gagner des intérêts. Types de placements favorisés par les administrateurs — Évolution d'opinion en ce qui regarde les sécurités préférentielles et montre de popularité de certains types de sécurité.

Conclusion — On a remédié à des maux manifestes. Conditions favorables — On est reparti sur de bonnes lignes. Le succès appartient à l'avenir.

KURZE NOTIZ.

UNTERSTÜTZUNGS-VEREINE IN NEU-SÜD-WALES.

Von John B. Trivett.

Beginn des Systems von Unterstützungs-Vereinen in Neu-Süd-Wales in 1834 — Sociale Verhältnisse des Staates zu jener Zeit.

Frühzeitige Gesetzgebung mit Bezug auf Unterstützungs-Vereine — Erster Parlaments-Beschluss in 1843. Spielraum und allmähliche Ausdehnung und Liberalismus der Gesetzgebung. Registrierungs-Bedingungen der Vereine. Uebertragene Vorrechte und Vortheile. Einschränkungen, Nachtheile und Fehler.

Zweites Gesetz in 1848. Ausdehnung des Anlage-Vermögens.

Consolidierungs-Gesetz 1853.

Neues Gesetz durchgegangen 1873 auf der Basis des englischen Gesetzes von 1855. Erste Verordnung für statistische Aufsicht. Wesentliche Mängel.

Königliche Untersuchungs-Commission ernannt 1881. Untersuchung auf 13 Monate ausgedehnt. Erste statistische Abschätzungen zu Stande gebracht. Insolvenz-Zustände enthüllt.

Bericht der Kommission. Begünstigte Bildung einer besonderen officiellen Ueberwachung von Vereinen. Maassgebende Quotation von Raten-Tabellen. Annahme des Princips abgestufter Beiträge im Verhältnis zum Alter. Separate Buchführung der verschiedenen Fonds, und Untersuchung derselben. Aufhebung des Abgaben- oder Antheil-Systems. Obligatorische Meldungen von Krankheiten, Sterblichkeit und anderer Zufälle. Berufung von Statistikern und Vorsorge periodischer Schätzungen.

Nichts weiter unternommen bis 1899, wenn ein Gesetz auf der Basis des englischen Gesetzes von 1896 durchging, welches volle Macht allen oben zum Ausdruck gebrachten Vorschlägen ertheilt.

Angabe nachfolgender Unternehmungen, um die neue Verordnung unter den Vereinen zu bewirken. Widerstand alter Mitglieder gegen erhöhte Zahlungen. Ausgleich hergestellt durch verbesserten Parlaments-Beschluss 1901, welcher den alten Mitgliedern das Recht der Zahlung der alten Raten auf 5 Jahre zuspricht, neue Mitglieder zur Zahlung von entsprechenden Raten ersucht, und in welchem eine nochmalige Erwägung der ganzen Angelegenheit nach 5 Jahren vorgesehen wird, die durch eine dann vorzunehmende Abschätzung beleuchtet werden soll.

Entwickelung der Mitgliederschaft von Unterstützungs-Vereinen, Nachlässigkeit bezüglich der Berichte, finanzielle Politik und Methoden der ersten Periode.

Verschiedene Arten von Vortheilen in Krankheitsfällen, Krankheits-Periode, bezügliche Kosten derselben, Behandlung der Frage durch die Vereine einer Verwirklichung des Eintretens einer Verbindlichkeit.

Verschiedene Arten von Begräbnis-Vortheilen.

Beiträge — Diskussion der möglichen Methoden und deren bezügliche Beliebtheit — Vorschläge und Widersprüche — Abgaben verurtheilt — Verwaltungs-Unkosten.

Vergleichende Statistiken von Mitgliederschaft und Fonds — Bemerkungen darüber — Alters-Pensionen — vergleichende Zahlen von andern Staaten — Tabellen-Ueberblick.

Schätzungen, welche in den Angelegenheiten der Vereine abgegeben wurden, zuerst von Herren Black und Teece in 1882 — Resultat derselben — Dann von dem Verfasser 1901 und Resultate dieser.

Bescheinigung der Hinlänglichkeit der Beisteuerungs-Scala der Vereine unter dem Gesetz von 1899 — alle Vereine jetzt nach diesem Gesetze handelnd.

Die Macht der Anlage — und Wichtigkeit der erzielten Zinsen — verschiedene Arten von Anlage, begünstigt von den Bevollmächtigten — Entwickelung der Ansichten bezüglich der vorzuziehenden Sicherheiten und Neigung zur Beliebtheit der verschiedenen Arten von Sicherheiten.

Abschluss — eingewurzelte Fehler sind verbessert worden. Günstige Bedingungen. Neuer Anfang auf der Basis angemessener Grundlagen — Erfolg liegt in der Zukunft.

DÉVELOPPEMENT DE L'ASSURANCE VIE, ASSURANCE DITE « ASSESSMENT,» SOCIÉTÉS FRATERNELLES, ASSURANCES CONTRE LES ACCIDENTS, ASSURANCES GARANTISSANT LA RESPONSABILITÉ CIVILE DES PATRONS, ASSURANCES CONTRE LA MALADIE, CAPITAUX DIFFÉRÉS, RENTES VIAGÈRES, PENSIONS DE RETRAITES POUR LA VIEILLESSE, PENSIONS D'OUVRIERS, ET TOUTES AUTRES OPÉRATIONS NÉCESSITANT L'AVIS DES ACTUAIRES; CE QUE L'ON PEUT CONSTATER EN BELGIQUE.

PAR C. LEMBOURG,

Docteur en Sciences physiques et mathématiques, Actuaire-adjoint de la Compagnie Belge d'Assurances Générales sur la Vie, les Fonds Dotaux et les Survivances.

But de la question. — A ne la considérer que seule, la question, telle qu'elle semble posée, serait satisfaite, en ce qui concerne mon pays, par la publication d'une histoire positive de l'assurance en Belgique, j'entends naturellement l'assurance vie et ses succédanés. Mais une telle histoire dépasserait de beaucoup en longueur les bornes d'un simple rapport.

D'autre part, il serait nécessaire d'éclairer les conclusions d'un tel ouvrage à la lumière des petits faits journaliers; à ce faire, on risquerait fort d'ouvrir, non pas des controverses de principes, mais des polémiques particulières. Il faut par suite se restreindre à l'exposé des phénomènes les plus généraux. D'ailleurs l'ensemble des questions qui forment le programme du 4e Congrès international d'Actuaires montre que telle est bien la portée générale de la deuxième d'entre elles.

L'allure de ce programme indique un souci constant des affaires et du commerce; même, si le Congrès n'est pas, ne peut pas être un Congrès de « businessmen,» il paraît toutefois solliciter particulièrement des actuaires des renseignements précis puisés à la pratique de leur métier bien plus dans la partie qui touche à la conduite et à l'orientation des organismes auxquels ils sont attachés, que dans celle qui a trait au calcul des risques et des réserves. Les sujets proposés de mémoires, ainsi que les six autres sujets de rapports ont, en connexion avec cette idée directrice, un caractère nettement spécial; il s'en suit que, par opposition, la portée de cette deuxième question est seulement générale et que le Comité organisateur a certainement désiré, en la posant, non une étude complète du développement de l'assurance vie dans les divers pays, mais seulement un coup d'œil très général sur la situation et les progrès de cette branche particulière des opérations financières.

Division et plan du rapport. — L'étude que j'ai l'honneur de présenter au Congrès traitera brièvement des diverses sortes d'assurances qui sont particulièrement de la compétence de l'actuaire; pour chacune je m'efforcerai de caractériser les procédés mis en œuvre par les Compagnies privées, les organismes officiels, les institutions patronales et les mutualités qui les pratiquent. Comme certaines de ces sortes d'assurances

peuvent être considérées comme des « assurances sociales,» je dirai quels sont les principes consacrés en ces matières par des lois récemment votées, me bornant à cela toutefois, puisque ce sujet a été complètement étudié dans le *Bulletin du Comité Permanent.*

J'aurai sans doute à m'excuser d'avoir été fort long. Mais, vu l'abondance des matières, je crains surtout de pécher par omission. Je négligerai totalement certains chapitres qu'il appartient à d'autres, en raison de leur autorité en ces matières, de traiter. Au surplus, je m'efforcerai pour le reste d'être succinct et bref, me réservant de renvoyer, pour de plus amples détails, aux rapports spéciaux de mes collègues de l'Association des Actuaires Belges sur le même sujet, ou sur des sujets connexes.

ASSURANCES SUR LA VIE PROPREMENT DITES.

Compagnies privées. Leur nombre. — Le nombre des Compagnies privées d'assurances opérant en Belgique est très considérable. On sait en effet que la législation est presque nulle en ces matières; aucune autorisation n'est requise, aucune publicité effective n'est ordonnée. Les formalités préalables au fonctionnement se réduisent à la publication, au *Moniteur Belge,* de l'acte de fondation et des statuts de la Société.

Les sociétés d'origine belge sont soumises à la loi, très large, qui régit les Sociétés Anonymes. Elles sont constituées valablement dès qu'il y a au moins sept associés fondateurs et qu'un dixième du capital social, non représenté par des apports, est versé.

L'exercice clos, il suffit de déposer au Greffe du Tribunal de Commerce compétent le Bilan et le Compte de Profits et Pertes y relatifs. C'est donc le régime de la liberté absolue, le droit de tout faire, et de n'en dire que presque rien.

Cette législation très libérale permet aux Compagnies tant belges qu'étrangères, de foisonner sur le territoire du pays.

On en compte:

22 belges, dont 2 pratiquent exclusivement l'assurance ordinaire, 12 exploitent l'assurance ordinaire concurremment avec l'assurance populaire et 8 ne pratiquent que cette dernière.

Leurs situations sont très inégales.

On compte en outre:

16 Compagnies anglaises,
7 Compagnies allemandes,
1 Compagnie danoise,
6 Compagnies américaines, dont 1 canadienne,
13 Compagnies hollandaises, dont 5 populaires,
4 Compagnies suisses,
2 Compagnies autrichiennes,
17 Compagnies françaises.

En tout 88 Sociétés d'assurances, dont 66 étrangères, exploitent le miniscule territoire de la Belgique.

Il y a donc abondance d'institutions privées d'assurances. Est-ce à dire pour cela que la population soit particulièrement disposée à s'assurer sur la vie? Il n'en est malheureusement rien et il y a beaucoup d'appétits pour une maigre pitance.

L'esprit de la population en matière d'assurance sur la vie. — Ce n'est pas que les Belges ne soient imprégnés jusqu'aux moëlles des idées d'épargne et de prévoyance. Et c'est précisément à ce point de vue la caractéristique des mœurs du pays, que les habitants, économes et d'esprit surtout positif, se montrent avec cela si peu disposés à traiter avec les Compagnies privées. Dans ses élans les plus généreux, dans ses

entreprises les plus audacieuses, le Belge est bridé par une instinctive défiance que ne désarment pas les calculs les plus sûrs, les méthodes les plus exactes. Même en matière de prévoyance, il ne se rend qu'à des raisons de sentiment et, il soupçonne des pièges sous les preuves tangibles et formelles.

Pourtant les affirmations audacieuses le stupéfient, l'hypnotisent si bien qu'il repoussera une opération mathématiquement sûre, si elle n'a pas la garantie de l'Etat, alors superflue, pour porter son argent soit aux officines délétères où les offres sont éblouissantes, soit à des associations fraternelles où la bonne volonté et l'honnêteté sont grandes, l'ignorance absolue, mais où l'on promet aussi, sincèrement d'ailleurs, bien au delà du possible.

Car le Belge recherche aussi les solutions bon marché, et semble trop peu se soucier de la qualité. Il ne faut point lui en faire un grief, tout d'abord parce que d'autres peuples ont ce travers, et surtout parce que les individus sont, en général, économiquement faibles.

Influence de la puissance économique individuelle. — On peut dire en effet que celui dont les besoins sont toujours pressants paie proportionnellement trop cher ce qu'il achète, et que sa capacité d'épargne est diminuée de ce fait. C'est une loi très générale, par exemple, que les logements sordides, abris urgents de la misère, se louent à l'avenant jusque deux fois plus chers que les habitations confortables, et que c'est de la nécessité *urgente* du crédit que naissent les taux usuraires. La valeur actuelle d'usage personnelle à l'acheteur permet la hausse des prix.

D'autre part les gens pauvres ne se fournissent, ne peuvent se fournir, qu'à un marché restreint; il faut encore remarquer que celui qui ne possède que peu, achète ou vend à tout prix suivant que la nécessité la plus immédiate est d'acheter ou de vendre. Il s'en suit que celui-là dont les ressources ne sont point, ou ne sont que peu, supérieures aux nécessités immédiates de la vie journalière ne peut pour ainsi dire pas *acquérir* et ne peut que difficilement conserver. Une image mathématique figurera avec précision ce phénomène économique: la faculté d'achat d'un individu est en raison d'une puissance positive plus grande que 1 de ses disponibilités.

Il faut dire aussi, pour tenir compte du facteur psychologique, que cette faculté d'achat dépend encore de la sagesse de l'individu. Mais la sagesse étant le fruit de l'expérience, celui qui n'a jamais eu que peu d'argent par devers lui ignore, par force majeure, le prix réel des objets. Et celui-là est défiant par instinct, à moins que, ébloui par l'éclat des choses qui toujours furent loin de lui, il ne se laisse prendre au mirage habile qui les rapproche et semble les mettre à sa portée moyennant un *léger* effort financier.

Les habitudes belges en ce qui concerne les assurances sur la vie ont pour cause la faiblesse économique individuelle. — Si l'on veut de plus remarquer que l'assurance sur la vie, modalité très élevée et très noble de l'épargne, représente, sous quelque forme que ce soit, je ne dirai pas des sacrifices, mais un prix assez élevé, il sera aisé de comprendre qu'elle ne peut être en grande faveur que dans un pays où le « standard of life » des diverses catégories de personnes est relativement élevé. La faiblesse économique des individus crée leur ignorance économique qui elle-même engendre à son tour une faiblesse économique plus grande. Les richesses naissent d'elles-mêmes par un perpétuel renouvellement qui se trouve être non seulement régénérateur, mais producteur nouveau, et producteur d'autant plus intensif que les richesses mises en œuvre dans le processus antérieur sont elles-mêmes plus considérables.

Or, les assurances sur la vie ne sont évidemment pratiquées que par ceux qui ont le moyen de la faire et qui ne les ignorent pas, et surtout n'ignorent pas leurs vertus économiques. Elles ne seront pratiquées sainement que par ceux qui en connaissent le prix exact, les conditions, les avantages, les déchéances.

Je crois pouvoir affirmer que si l'ignorance économique des individus dérive immédiatement d'une raison psychologique, le misonéisme, commune à tous les peuples vieux, elle dérive aussi de l'insuffisance de leurs moyens; d'autre part cette insuffisance de moyens est la seconde cause immédiate qui frappe de stérilité les œuvres d'épargne. Comme elle est de plus un des antécédents de l'autre cause immédiate que j'ai signalée, l'ignorance, il me suffira, pour établir la raison profonde de l'infériorité relative de la Belgique dans la pratique de la prévoyance, de rappeler que, de l'avis général, le « standard of life » sans être très bas n'atteint cependant pas le niveau que l'on peut constater dans les pays où l'assurance sur la vie est le plus en honneur.

Je voudrais pouvoir éclairer ce raisonnement par des chiffres précis; par malheur, faute de documents, les établissements d'assurances n'étant astreints à aucune publicité effective, il n'est possible de déterminer ni la production annuelle obtenue par les diverses sociétés, ni le montant global des assurances sur la vie souscrites en Belgique. Le Congrès voudra bien m'en excuser et me permettre de passer aux institutions officielles d'assurances sur la vie.

Institutions officielles où l'on pratique l'assurance vie, sous certaines formes particulières. — Il y a tout d'abord à citer les Caisses des Veuves et des Orphelins des fonctionnaires des divers départements ministériels, des fonctionnaires de l'ordre judiciaire, les Caisses des Veuves et Orphelins des membres des divers corps enseignants, les caisses de retraite personnelle des professeurs de l'enseignement supérieur et de l'enseignement moyen. Toutes ces caisses se distinguent par une méconnaissance absolue des règles actuarielles. Aussi sont-elles, comme M. Mahillon l'avait déjà signalé dans la préface de la traduction française du *Text-Book,* dans une situation déplorable. Je renvoie pour de plus amples détails à ce sujet au rapport de Mr. E. Lefranc au Congrès de Paris, et aux travaux remarquables de MM. Adan, Lepreux et Duboisdenghien rappelés dans la notice bibliographique y annexée.

Caisse générale de retraite et Caisse d'assurances y annexée. — Tout au contraire, la Caisse générale de retraite et la Caisse d'assurances sur la vie y annexée ont été établies scientifiquement. Les précédents congrès d'Actuaires ont été édifiés à ce sujet.

Sociétés Mutuelles. Les pseudo-mutualités. — Les sociétés mutuelles belges pratiquant l'assurance sur la vie sont peu nombreuses et, certes, elles ne sont pas de premier ordre.

On sait qu'en France les pseudo-mutualités, pour employer l'expression si juste de Mr. Cheysson, ont pu naître et prospérer, au grand dam de la saine prévoyance, malgré l'insuffisance de leurs bases et l'exagération évidente de leurs promesses.

En Belgique, leur succès auprès du grand public a été heureusement bien moindre, grâce à l'énergique campagne poursuivie par l'Association des Actuaires Belges.

Fondées dans le but apparent de garantir des pensions de vieillesse, ou des capitaux aux décès, intermédiaire entre l'ignorance et l'escroquerie, mais voisinant davantage avec cette dernière, les Sociétés du genre « Prévoyants de l'Avenir,» ou pis encore, ont vu le jour surtout dans les régions industrielles du pays. Elles offrirent à des prix sur-

prenants de bon marché les combinaisons les plus alléchantes. Mais la plupart n'ont eu, heureusement pour l'épargne belge, qu'une existence éphémère, et toute leur renommée provient de leur effondrement lamentable. Quelques-unes pourtant ont survécu. Cela ne doit pas leur donner un bill d'absolution: mal conçues, mal gérées, d'une insuffisance technique notoire, elles courent inévitablement à la ruine, et un avenir prochain enregistrera sans nul doute des faillites qui pour n'être pas retentissantes n'en seront pas moins complètes.

En résumé:

Les établissements belges d'assurances sur la vie se partagent en 5 groupes.

Le premier comprend les Institutions officielles, Caisses de Veuves et Orphelins, etc., *qui n'ont pas la garantie de l'État.* Elles ont été établies en dépit du bon sens, et un bilan technique révélerait pour la plupart d'entre elles un déficit considérable. Il serait désirable que le Gouvernement cherchât à les réorganiser. Il est urgent qu'il ne laisse pas la situation empirer davantage.

Je constitue le deuxième groupe par l'ensemble des pseudo-mutualités et des officines dites d'assurances dont les promoteurs furent, en les créant, mal inspirés, dans l'un ou l'autre sens du mot.

Heureusement ce groupe n'est pas aussi étendu qu'on pourrait le croire, et il est des Sociétés qu'il ne faut pas y englober bien qu'elles ne soient pas de premier ordre. Non pas que j'aie tous mes apaisements à leur égard. Leurs agissements ne sont pas à l'abri de toute critique, leurs tarifs sont parfois étranges et leurs placements singuliers, mais leur situation n'est pas désespérée, leur conduite n'est sans doute pas malhonnête. Un coup de barre vers les sains principes et les voilà sauvées.

Je ne citerai que pour mémoire les petites mutuelles, celles-ci ayant pour but presque exclusif les secours en cas de maladie ou l'affiliation à la Caisse de retraite. Incidemment elles pratiquent l'assurance au décès, mais pour des capitaux infimes; une indemnité funéraire de 50 à 100 francs. Au surplus, Mr. Duboisdenghien les étudie dans son rapport et Mr. Lepreux sera probablement amené à s'en occuper si, devant le Congrès, il traite de l'organisation des retraites ouvrières en Belgique et de la loi du 10 Mai 1900.

Le 4e groupe est constitué par un établissement quasi officiel, puisqu'il jouit de la garantie de l'État, mais dont l'existence est absolument autonome. Organisé et géré techniquement, servi par une publicité habile autant qu'étendue, il n'a pu manquer de prendre une extension toujours croissante. J'ai nommé la Caisse Générale d'Épargne et de Retraite.

Il reste à citer deux Compagnies privées dont la probité est au-dessus de tout soupçon, et qui sont scientifiquement, autant qu'énergiquement, conduites. Grâce à l'habileté de leurs directions, ces dernières Compagnies ont pris le premier rang en Belgique.

LES SOCIÉTÉS DE SECOURS MUTUELS EN CAS DE MALADIE, LES PETITES MUTUELLES DE RETRAITE ET LES RETRAITES OUVRIÈRES.

Ces deux sujets doivent être traités par MM. Duboisdenghien et Lepreux, dans des rapports spéciaux. On peut d'ailleurs trouver une étude générale de la loi du 10 Mai 1900 organisant les retraites ouvrières sous le régime si topiquement défini par les mots « liberté subsidiée,» dans le Bulletin du Comité permanent des Congrès internationaux d'actuaires, année 1901, sous la signature de Mr. Maingie.

LES SOCIÉTÉS D'ASSURANCES CONTRE LES ACCIDENTS ET LA LOI SUR LA RÉPARATION DES DOMMAGES RÉSULTANT DES ACCIDENTS DU TRAVAIL.

Il y a en Belgique assez bien de Sociétés qui pratiquent ce genre d'assurances. Les sociétés belges sont au nombre de 31. Quelques-unes, dont certaines pratiquent en même temps l'assurance sur la vie, sont de premier ordre.

L'assurance s'étend aux risques individuels, aux risques collectifs industriels, aux risques spéciaux de voyage, à la responsabilité civile des maîtres et employeurs vis-à-vis des tiers. Les résultats sont généralement satisfaisants. La production est abondante et régulièrement en progrès. Ferai-je remarquer que la technique de l'assurance-accidents semble être à la portée d'un chacun, et que les primes toutes chargées qu'elles sont, sont très faibles et par suite accessibles à toutes les bourses?

Les sociétés étrangères sont aussi nombreuses, leur industrie est aussi variée, leur situation équivaut au moins à celle des sociétés indigènes; celle des sociétés suisses paraît même prépondérante, les grands risques collectifs étant assurés chez elles.

Législation des Accidents du Travail. — Une des dernières parmi les nations européennes, la Belgique se voit enfin dotée d'une législation réparatrice des Accidents du travail. La question était à l'étude depuis fort longtemps, mais les transformations successives des projets ont été fort clairement résumées par les discours prononcé à la Chambre en Février dernier par Mr. le Ministre du Travail, lors de la première séance consacrée au débat sur le projet actuellement déposé.

Principes écartés et principes admis. — La Chambre des Représentants en délibère encore à l'heure actuelle (Mai 1903). Je ne me livrerai donc pas à l'étude d'une loi qui n'est pas née. Je dirai seulement que les actuaires, dans de nombreux écrits, se sont efforcés, non sans succès, de faire écarter la considération des probabilités de mariage et de paternité, et qu'ils ont réussi à faire accepter, pour la constitution des indemnités, le principe de la capitalisation. Le projet est dominé par le principe du *risque professionnel,* la réparation supportée exclusivement par l'employeur étant fixée à titre de forfait à une rente égale à une « fraction déterminée » du salaire normalement disparu. Je dirai aussi qu'aux termes du projet, la réparation est obligatoire, la réparation, dis-je, tandis que l'assurance est libre et de libre choix. Pour garantir la réparation un amendement au projet est déposé instituant une Caisse d'assurances contre l'insolvabilité, à laquelle seraient affiliés « obligatoirement » les employeurs non assurés contre les Accidents.

INSTITUTIONS PATRONALES.

Je fais deux groupes distincts des institutions patronales de prévoyance: dans l'un je classe celles qui sont constituées en faveur de leur personnel par les grandes administrations publiques autres que l'État, par de grandes sociétés financières et industrielles; dans l'autre les Caisses de prévoyance des ouvriers mineurs des divers bassins houillers de Belgique.

Les premières sont la copie plus ou moins malheureuse des Caisses de Veuves et Orphelins des départements ministériels dont on a laissé subsister toutes les tares: Le patron et l'employé y contribuent pour des quotités variables, les pensions promises dépendent du traitement des dernières années et les cotisations n'ont avec elles aucuns rapports; ou bien il est simplement créé un fonds de secours. L'invalidité pré-

maturée ouvre le droit aux secours ou à la pension. Je n'ai pas besoin d'ajouter qu'il n'y a aucune table de risques et que ces diverses institutions ont laissé se perdre d'innombrables matériaux statistiques, qu'elles n'ont jamais dressé de bilans techniques, et qu'elles ignorent le premier mot de leur situation financière.

Les mêmes reproches s'adressent aux Caisses de prévoyance des ouvriers mineurs que je n'ai considérées à part qu'en raison d'un point de leur objectif, la réparation des dommages résultant des accidents de houillères. Mr. Lepreux a donné un aperçu de leur situation générale dans le *Bulletin de la Prévoyance,* première année, Nos. 1, 2, 3, 4, 5.

J'abrège à dessein cette notice parce que, aux termes précis de la deuxième demande faite par le Comité organisateur, elle constitue un hors-d'œuvre et surtout parce que ces institutions n'ont rien de *l'Assurance* au sens propre du terme. J'en ai parlé parce que leur établissement et leur gestion sont d'autant plus de la compétence de l'actuaire qu'elles n'ont jamais pensé à utiliser les offices d'un employé technique et qu'elles ont toujours semblé mettre un point d'honneur à mépriser les avis de la science.

FONCTIONNEMENT DES INSTITUTIONS D'ASSURANCES.

Il resterait à dire quelques mots du fonctionnement des organismes assureurs que je viens de passer rapidement en revue. Mais la chose est fort malisée, étant donné le manque de documents. Au surplus ils ont été, si l'on se place à un point de vue général, suffisamment caractérises par ce qui précède; et il suffira d'ajouter quelques mots au sujet de leurs placements.

Les institutions officielles et les Caisses de prévoyance des ouvriers mineurs ne prennent que du papier d'État, pas d'immeubles, pas d'hypothèques, pas d'obligations ni d'actions de sociétés financières ou industrielles, même de premier ordre. La sécurité de leurs placements est donc du même ordre que le crédit de l'État Belge.

La Caisse Générale d'Épargne et de Retraite jouit, on le sait, d'une certaine liberté dans le choix de ses placements. C'est même là une des raisons de sa prospérité.

L'actif des Caisses de secours et de retraite d'origine patronale constitue un poste au passif du bilan des Sociétés auprès desquelles elles sont instituées. Il est donc garanti dans la mesure de la solidité de ces sociétés elles-mêmes; le produit est nul, le fonds s'accroit chaque année d'une partie des bénéfices.

Les Compagnies privées d'assurances et les sociétés de secours mutuels règlent statuairement l'emploi de leurs disponibilités.

Les bilans publiés par la Caisse d'Épargne et par les Compagnies d'assurances de premier ordre, indiquent suffisamment la composition de l'actif de ces institutions. On me permettra de n'en point faire l'étude qui, par trop de généralité, serait dénuée de tout intérêt, et de n'insister que sur un point: l'utilisation des disponibilités en prêts hypothécaires destinés à faciliter l'achat ou la construction d'habitations.

LES HABITATIONS À BON MARCHÉ.

Je n'apprendrai rien de bien neuf aux membres du Congrès. Je m'en excuse tout d'abord. Les choses essentielles ont été dites en 1898 à Londres par MM. Hankar et Bégault qui ont fait un résumé très clair et très complet des « opérations de prêts combinées avec assurances mixtes » telles qu'elles sont pratiquées par la Caisse Générale d'Épargne et de Retraite et la Compagnie Belge d'Assurances Générales sur la Vie.

Le Congrès de Düsseldorf (habitations ouvrières, 1902) s'est aussi préoccupé de cette question. Je crois toutefois qu'il est bon de noter que le mouvement se propage et que la combinaison elle-même se généralise, c'est-à-dire que les assurances contractées en vue de garantir le remboursement d'une créance souscrite par l'assuré deviennen de plus en plus communes. Il n'y a à cela rien d'étonnant, l'assurance sur la vie offrant ainsi le moyen de réaliser un but précis et positif.

Raisons du succès de cette combinaison.—Ce moyen est d'ailleurs économique; c'est une des raisons de sa grande faveur. Il faut remarquer en effet que les combinaisons "Prêt à terme fixe plus assurance mixte" et "annuités plus assurances temporaires" représentent une économie sérieuse en égard au taux actuel des loyers des immeubles, lequel est supérieur de 2% à 3% et davantage au taux auquel les sociétés de crédit consentent des prêts pour acheter ou pour bâtir. Cela diminue d'autant le prix de l'assurance ou de l'amortissement qui devient par conséquent bon marché, c'est-à-dire accessible à la population.

En dehors des opérations réalisées à l'intervention des nombreuses sociétés d'habitations ouvrières agréées par la Caisse d'Épargne, on peut d'ailleurs observer, et c'est un argument en faveur de la thèse que j'ai émise dès les premières lignes de ce rapport, que l'opération n'est goûtée du public que lorsqu'il s'agit d'immeubles urbains.

Cela pour plusiers raisons:

La première est d'ordre psychologique. Le citadin est mieux à même, question d'éducation plus complète sans doute, d'apprécier l'utilité de l'assurance. Il est, du reste, bien plus sollicité par les intermédiaires—Sociétés ou Agents—et les tracts de propagande. Mais je ne crois pas que des diverses raisons cette première soit la plus importante.

Les deux autres sont d'ordre matériel. On gagne mieux sa vie dans les villes; les salaires sont sensiblement plus élevés. D'autre part les bâtisses rurales ne se louent pas à des taux aussi élevés que les immeubles urbains, le gage est donc estimé valoir moins et être davantage sujet à dépérissement; le pour cent du prêt consenti rapporté au coût total de l'habitation se réduit; le taux de l'intérêt du prêt se relève. Or, le taux de l'intérêt exigé par le prêteur augmentant l'écart d'avec le taux de loyer réduit, nous l'avons vu, diminue de beaucoup et l'assurance apparaît d'autant plus chère.

CONCLUSION.

Il peut sembler que j'ai cité peu de chiffres positifs et de faits précis. J'ai préféré en effet donner simplement une impression d'ensemble des phénomènes les plus généraux en même temps qu'un essai d'explications.

La corrélation que je signale entre la puissance économique individuelle des habitants d'un pays et la prospérité de l'industrie des assurances dans ce même pays n'est évidemment qu'une hypothèse. Mais j'estime cette hypothèse vraisemblable et je la crois fort défendable. Les faits eussent été, je le reconnais, plus démonstratifs que le raisonnement que j'ai employé. Mais il n'existe pas, à ma connaissance, de statistiques donnant pour les divers pays le niveau du "standard of life"; il n'en existe pas non plus établissant à suffisance la situation des institutions d'assurances, leur mouvement, leur progression.

Il faut au surplus corriger mon rapport qui paraît conclure à une situation déplorable de l'assurance-vie en Belgique, il faut le corriger d'une note optimiste. Depuis quelques années, la production, de l'avis

unanime des assureurs de métier, va se relevant. Les idées de prévoyance rationelles, c'est-à-dire effectives, c'est-à-dire efficaces, se répandent de plus en plus dans le public — c'est principalement à l'Association des Actuaires Belges qu'on le doit — les jeunes générations en sont imbues. Incontestablement la situation matérielle des salariés et appointés de tous ordres va s'améliorant, l'éducation technique et commerciale se perfectionne, la notion de responsabilité sociale s'élargit. L'industrie des assurances est appelée à bénéficier une des premières de cet accroissement de bien-être et de cette élévation du sens moral.

De l'œuvre accomplie, et de ces espérances nouvelles, les actuaires belges doivent non seulement se réjouir, mais concevoir une grande et noble fierté. Car, par une juste réciprocité des liens économiques, cette industrie des assurances dont la prospérité est subordonnée à la prospérité générale est elle-même un facteur de cette prospérité générale: elle transforme les disponibilités actuelles; rationnellement conduite, elle crée avec le bien-être de maintenant le bien-être de demain. Cette qualité de l'assurance d'être une œuvre de production et non des moindres donne à notre profession un caractère de haute utilité sociale.

ABSTRACT.

ON THE GROWTH IN BELGIUM OF LIFE INSURANCE, ASSESSMENT INSURANCE, FRIENDLY SOCIETIES, ACCIDENT INSURANCE, EMPLOYERS' LIABILITY INSURANCE, HEALTH INSURANCE, PURE ENDOWMENT BUSINESS, ANNUITY BUSINESS, OLD AGE PENSIONS, WORKMEN'S PENSIONS, AND OTHER OPERATIONS REQUIRING ACTUARIAL ADVICE.

By C. Lembourg.

There exist multifarious relations between the personal situation of individuals and the general practice of life insurance. Although economic factors react, one on the other, and it be consequently difficult to discover the real nature of these relations, I do not think rash to lay down, at least as an hypothesis, that in a given country, the extension of the business of insurance is directly connected with the higher or lower level of the "Standard of Life" of the people. As statistics are lacking it is certainly difficult to prove this assertion by the means of authentic figures; I attempt to justify it by means of statements based on every day life.

I assert in passing that people of mature years, although much disposed to save money, are yet living in deep ignorance of the rules of a rational, that is to say, efficacious, provision for the future; it being a fact that official institutions, patronal provident societies and benevolent societies are governed by rules from which common sense seems to be excluded.

The situation of the insurance business is impaired by this ignorance as much as it is depressed by a too low level of "Standard of Life."

Life insurance seems dearer and of technicalities more difficult to be understood by people at large than accident insurance, and has more than this latter suffered from these unfavorable influences.

It is worth while to notice, in the same line of ideas, the success, when the question of city residence is agitated of the plan "Loans to buy or to build with reimbursement thereof guaranteed by life insurance."

But if the situation does not now appear very bright, the future does not seem so dark; the conditions of the "Standard of Life" are improving and economic knowledge progresses.

It is principally owing to the work of the Association of Belgian Actuaries that this last result is made manifest in the field of individual and friendly societies insurances. Consequently the influence of this Association is strong in Belgium.

It is with legitimate pride that an actuary is able to claim for the association of which he is a member such a title of glory as this, of having shown to every one interested in insurance and to the Government itself the scientific path of progress; of having started them on this road; of having urged them so continuously that resistance, once so stubborn, has yielded to the common wish to regard science and its teachings.

In so doing the Association of Belgian Actuaries has fulfilled an eminently useful mission.

KURZE NOTIZ.

ÜBER DAS WACHSTUM DER LEBENSVERSICHERUNG, DER CO-OPERATIVEN VERSICHERUNG, DER GENOSSENSCHAFTS-KASSEN, DER UNFALL-VERSICHERUNG, DER HAFTPFLICHT-VERSICHERUNG DER ARBEITGEBER, DER KRANKEN-VERSICHERUNG, DER REINEN KAPITAL-VERSICHERUNG, DER LEIBRENTEN, ALTERS- UND ARBEITER-PENSIONEN, SOWIE ANDERER ÄHNLICHER UNTERNEHMUNGEN, WELCHE DIE BEIHILFE VON AKTUAREN ERFORDERN, IN BELGIEN.

Von C. Lembourg.

Es existieren sicherlich vielfache Beziehungen zwischen der persönlichen Lage der Individuums und der allgemeinen Praxis der Lebens-Versicherung.

Obgleich ökonomische Faktoren auf einander einwirken und es aus diesem Grunde ziemlich schwierig ist, die wirkliche Natur dieser Beziehungen auszufinden, glaube ich dennoch nicht zu vermessen zu sein, wenn ich, als eine Hypothese wenigstens, behaupte, dass in einem gegebenen Lande die Ausdehnung des Versicherungswesens direct von dem höheren oder niedrigeren Niveau der Normal-Lebensfähigkeit des Volkes abhängt. Da die Statistiken fehlen, so ist es sicherlich schwierig, diese Behauptung mittelst authentischer Zahlen zu beweisen, doch bemühe ich mich, diese meine Annahme durch Begründungen vom alltäglichen Leben zu rechtfertigen.

Ich constatiere beiläufig, dass Leute reiferen Alters, obgleich sehr zur Sparsamkeit angelegt, dennoch in vollkommener Unkenntnis der Regeln einer rationellen, das ist einer nachdrücklichen Vorsorge leben; es ist Thatsache, dass die Haupt-Organismen und die beschützenden Einrichtungen der Vorsehung, ebenso wie die gegenseitigen Unterstützungs-Vereine von Statuten geleitet werden, denen jeder gesunde Menschenverstand zu fehlen scheint.

Die Lage des Versicherungs-Wesens ist durch diese Unwissenheit in demselben Maasse beeinträchtigt, wie durch ein zu geringes Niveau einer Normal-Lebensfähigkeit.

Die Lebensversicherung erscheint der grossen Masse theurer und von einer schwerer zu verstehenden Technik, als die Unfall-Versicherung, und hat mehr, als die leztere von diesen ungünstigen Einflüssen zu leiden gehabt.

Es ist der Mühe werth, in derselben Gedankenfolge den Erfolg zu erwähnen, jedesmal wenn es sich um Stadt-Grundstücke handelte unter der Bedingung: „Darlehn zu kaufen oder zu bauen, dessen Rückzahlung von einer Lebensversicherung garantiert ist."

Wenn auch die gegenwärtigen Verhältnisse nicht sehr brillant erscheinen, so sieht doch die Zukunft nicht gerade dunkel aus. Die Bedingungen der Normal-Lebensfähigkeit gestalten sich besser und die ökonomische Kenntnis vervollkommnet sich ebenfalls.

Es ist vorzugsweise den Anstrengungen der Vereinigung belgischer Statistiker zuzuschreiben, dass sich dieses gute Resultat ergeben hat sowohl auf dem Gebiete der individuellen als auch socialen Versicherung. Der Einfluss dieser Vereinigung in Belgien is demzufolge ein bedeutender.

Es ist ein gerechtfertigter Stolz, dass ein Statistiker für eine Vereinigung, deren Mitglied er ist, folgenden Ehrenpreis erringen konnte: Dass er jedem einzelnen, der in Versicherungswesen interessiert ist, sowie auch der Regierung, den wissenschaftlichen Weg zum Erfolg gezeigt hat; dass er diese zu einem solchen Wege angetrieben hat, dass er sie dann fortdauernd so angespornt hat, dass der in der Vergangenheit so hartnäckige Widerstand einem gemeinsamen Streben, der Wissenschaft und seinen Lehren nachzueifern, gewichen ist.

Durch diese Thätigkeit hat die Vereinigung belgischer Statistiker ein ungemein nützliches Werk vollbracht.

ON THE GROWTH IN CANADA OF LIFE INSURANCE, ASSESSMENT INSURANCE, FRIENDLY SOCIETIES, ACCIDENT INSURANCE, EMPLOYERS' LIABILITY INSURANCE, HEALTH INSURANCE, PURE ENDOWMENT BUSINESS, ANNUITY BUSINESS, OLD AGE PENSIONS, WORKMEN'S PENSIONS, AND OTHER OPERATIONS REQUIRING ACTUARIAL ADVICE.

BY

A. K. Blackadar,
Actuary, Canadian Insurance Department.

(1) The Field for Insurance in Canada.

The Dominion of Canada, comprising nearly one-half the North American Continent, has an area of 3,745,574 square miles. The population in 1891 was 4,833,239, and in 1901 5,371,315, an increase of only 11.13 per cent. during the decade. Immigrants are now pouring into the country from the British Isles, United States, and European countries, and there is every likelihood of Canada having a population before the close of the first quarter of the present century reaching into the tens of millions.

The population of 1901 was composed of 3,063,189 people of British origin, 1,649,371 of French origin, and 658,755 of other races. The rural population was 3,349,516, and the urban 2,021,799.

(2) Life Insurance.

In the following statistics the business outside of Canada of Canadian companies has been excluded, and the Canadian business only of foreign companies has been retained.

With the exception of two small provincial companies, all life insurance companies doing business in Canada make annual returns to the Dominion Insurance Department, and the following tables compiled from these returns show the progress of life insurance during the past ten years. The insurances effected and the amounts in force of the Ontario companies are also included.

TABLE I.

Amounts of insurance effected in Canada during the respective years 1892-1902.

Year	Canadian companies	British companies	American companies	Total
1892	$26,622,034	$3,625,213	$15,409,266	$45,656,513
1893	29,321,297	2,967,855	14,145,555	46,434,707
1894	29,960,277	3,214,216	17,640,677	50,815,170
1895	28,768,308	3,337,638	13,093,888	45,199,834
1896	26,874,331	2,869,971	13,582,769	43,327,071
1897	30,931,521	2,778,510	15,138,134	48,848,165
1898	36,197,182	3,323,107	16,398,384	55,918,673
1899	43,253,428	3,748,127	21,514,478	68,516,033
1900	39,495,494	3,717,997	26,632,146	69,845,637
1901	39,597,317	3,059,043	32,541,438	75,197,798
1902	48,045,662	3,324,317	31,431,831	82,801,810

TABLE II.

Amounts of insurance in force in Canada, 1892-1902.

Year	Canadian companies	British companies	American companies	Total
1892	$156,148,827	$33,692,706	$ 90,708,482	$280,550,015
1893	169,694,152	33,543,884	94,602,966	297,841,002
1894	180,292,939	33,911,885	96,737,705	310,942,529
1895	191,081,286	34,341,172	96,590,352	322,012,810
1896	198,035,897	34,837,448	97,660,009	330,533,354
1897	209,354,780	35,293,134	100,063,684	344,711,598
1898	227,766,754	36,606,195	105,708,154	370,081,103
1899	254,333,167	38,025,948	113,943,209	406,302,324
1900	269,709,033	39,485,344	124,433,416	433,627,793
1901	286,483,688	40,216,186	138,868,227	465,568,101
1902	310,613,960	41,335,484	159,153,464	511,102,908

TABLE III.

Premium-income in Canada during the respective years 1892-1902.

Year	Canadian companies	British companies	American companies	Total
1892	$ 4,729,940	$1,088,816	$3,251,598	$ 9,070,354
1893	5,156,008	1,073,541	3,403,230	9,632,779
1894	5,435,031	1,079,330	3,394,914	9,909,275
1895	5,702,783	1,137,366	3,452,205	10,292,354
1896	6,075,454	1,137,607	3,389,605	10,602,666
1897	6,598,012	1,174,732	3,443,074	11,215,818
1898	7,107,073	1,210,601	3,676,490	11,994,164
1899	7,805,174	1,276,229	3,957,304	13,038,707
1900	9,373,405	1,372,355	4,261,181	15,006,941
1901	9,133,890	1,346,666	4,709,298	15,189,854
1902	10,048,204	1,415,273	5,614,083	17,077,560

From these tables it will be seen that the growth of life insurance in Canada has by far exceeded the growth of population. Whilst the population has increased but 11.13 per cent. during the ten years, the volume of insurance in force has increased 82.18 per cent. The amounts of insurance effected during 1902 shows an increase of 81.36 per cent. over that effected in 1892, and the premium-income has increased 88.73 per cent. The rate of increase during the last six years is especially noticeable.

The amounts in force December 31, 1902, may be classified as follows:

Assurances payable at death	$316,000,000
Endowment assurances	126,000,000
Term and miscellaneous	34,000,000
Reversionary bonus additions	8,000,000
Industrial insurance	27,000,000
Total in force	$511,000,000

The business taken during the year 1902 may be classified as follows:

Life insurance	$43,500,000
Endowment assurance	20,500,000
Term and other insurance	5,000,000
Industrial insurance	14,000,000
Total	$83,000,000

A large proportion of the life business is upon the limited payment plans.

Active business of life insurance is carried on in Canada by twenty-three Canadian companies (including the two provincial companies above mentioned), seven British companies, and ten American companies. There has been no increase during the last ten years in the number of the foreign companies operating, but of the Canadian companies all but ten have come into existence during that period, and two or three others have obtained charters for life business and are in process of organization.

Six of the Canadian companies do business outside of Canada; 10,067 foreign policies were written by them in 1902, amounting to $14,504,324, and at the end of the year there were 33,008 foreign policies of Canadian companies in force, amounting to $51,388,910.

In 1892 the number and amount written were 780 for $2,801,097, and the number and amount in force 2,744 for $6,868,462.

(3) Industrial Insurance in Canada.

The progress of industrial insurance in Canada during the past ten years is very marked. The following table gives the amount of new business written during the respective years 1892-1902, and the amounts in force on December 31st of each year.

These amounts are included in the figures in Tables I. and II. above.

TABLE IV.

Industrial insurance in Canada.

Year	Business written		Business in force	
	No.	Amount	No.	Amount
1892	14,689	$ 1,478,912	28,477	$ 2,720,518
1893	14,382	1,584,657	32,340	3,386,785
1894	75,301	7,367,872	67,613	6,340,919
1895	76,833	6,416,410	86,239	7,135,168
1896	63,111	7,003,787	97,451	9,086,402
1897	69,514	7,961,823	114,949	11,292,885
1898	102,875	11,266,940	144,818	16,197,414
1899	104,246	11,226,712	172,110	18,103,409
1900	97,522	10,937,479	193,850	20,487,211
1901	97,359	13,501,530	213,044	24,220,725
1902	110,722	14,635,492	238,262	27,345,604

Industrial insurance in Canada is transacted by four Canadian companies (one of which, the Union Life, was organized in 1902) and by one American company.

(4) Annuities and Pure Endowments.

Life annuities are dealt in only to a very limited extent by the people of Canada, and they have never been undertaken by the Dominion government or by the governments of any of the Provinces.

At the end of 1902 there were only 459 life annuities in force in Canada out of a population of over 5,000,000, and several of the larger of these annuities have arisen from the granting of pensions to retired officers of companies. Excluding the annuities issued by Canadian companies in foreign countries, the following gives the number of annuities and the amounts payable annually at end of 1902.

Life annuities in force in Canada December 31, 1902:

	No.	Amount payable per annum
Canadian Companies.....	317	$ 91,615.27
British Companies.....	19	16,418.77
American Companies.....	123	48,335.81
Total	459	$156,369.85

Including all the annuities of Canadian companies and the annuities in Canada of British and American companies, the following table shows the amount of payments to annuitants during the respective years 1892-1902, and the table also shows that whatever growth there has been in the way of annuities in Canada has been of recent years.

TABLE V.

Amounts paid to annuitants, 1892-1902.

Year	Canadian companies	British companies	American companies	Total
1892	$ 33,959	$ 5,737	$12,973	$ 52,669
1893	35,328	5,099	14,960	55,387
1894	38,895	6,002	16,695	61,648
1895	14,219	6,667	19,643	40,529
1896	19,960	7,245	20,388	47,593
1897	32,217	9,919	22,905	65,041
1898	49,612	12,095	27,231	88,938
1899	61,776	13,144	29,798	104,718
1900	98,005	14,160	34,111	146,276
1901	110,101	16,499	35,212	161,812
1902	134,608	16,150	43,785	194,543

Pure endowments are not issued by companies operating in Canada except in combination with other forms of insurance.

(5) Assessment Insurance.

Apart from the business done by fraternal societies, no new assessment insurance is now transacted in Canada. Since 1892 there have been, for various intervals or lengths of time, eight assessment companies doing business in Canada—five Canadian and three American. Of these eight, only two now remain, one Canadian and one American, and these are both doing business as ordinary insurance companies upon the reserve basis.

It was during the year 1893 that the largest amount of assessment business was transacted ($10,917,225), and during the years 1891 to 1895 inclusive, the amount of business written was about one-fourth the volume written by the regular life insurance companies. The amount of assessment insurance in force reached its maximum at the end of 1897, when there were 27,786 policies in force, amounting to $51,792,765. This amount has rapidly decreased, and at the end of 1901 there was less than $12,000,000 of assessment insurance in force, and this amount is rapidly decreasing by lapse or by being transferred to a reserve basis.

TABLE VI

Assessment insurance in Canada, 1892-1902.

Year	Business written		Business in force	
	No.	Amount	No.	Amount
1892	6,332	$10,740,475	22,745	$43,905,575
1893	6,064	10,917,225	24,893	47,282,625
1894	7,782	10,024,650	26,556	49,805,970
1895	5,316	9,264,025	27,786	51,792,765
1896	3,940	7,056,800	26,590	49,249,399
1897	1,885	3,215,800	24,104	44,172,699
1898	1,693	2,779,455	19,463	35,512,354
1899	1,084	2,064,500	13,853	24,668,377
1900	864	1,500,300	10,522	17,948,500
1901	378	752,699	7,289	11,651,200
1902	....	.....	6,308	10,547,250

(6) Business of the Nature of Life Insurance Undertaken by Friendly Societies in Canada.

Statistics for the past ten years relating to the business of life insurance undertaken by fraternal or friendly societies are obtainable from the reports of the Ontario Insurance Department respecting the business transacted by the societies registered by that department, and from the statements of the societies registered or licensed under the Dominion Insurance Act.

There are twenty-two of these societies reporting life insurance business to the Ontario department—seventeen Canadian societies and five American.

In the case of the American companies, the business in Canada is not separated in these reports from the business over the whole jurisdiction.

There are four societies reporting to the Dominion Insurance Department. One of these, the Canadian High Court of the A.O.F., has a Dominion incorporation and is regularly licensed under the insurance act as a reserve company, and its business is included in the life statistics given above.

Under the Ontario Act no new fraternal society is permitted to register for the purpose of transacting business of the nature of life insurance, and as this act has been in operation since 1891, the societies remaining upon the Ontario lists and transacting such business have all been more than ten years in existence. The three societies licensed or registered under the provisions of the Dominion Insurance Act are the Independent Order of Foresters, the Catholic Mutual Benefit Association, and the Canadian Order of the Woodmen of the World. The last-named was incorporated in 1893, and is the latest society organized under Ontario or Dominion laws for the transaction of this kind of insurance.

A Benevolent Societies' Act was passed by the Legislature of the Province of Quebec in 1899, and societies operating in that province are now making annual reports of their transactions to the inspector of benevolent societies of that province. No report of these societies has yet been issued by that department. I am indebted, however, to the inspector for statistics giving the amount of insurance carried by the local societies as at the end of 1902. Statistics for the preceding years are not obtainable.

In the following table there is given the business written and the

amounts in force during the respective years 1892 to 1902 of the Canadian fraternal societies reporting to the Ontario and the Dominion insurance departments. From these figures there is excluded the foreign business of the society (Independent Order of Foresters) operating in foreign fields. The statistics also do not contain the business of the local societies of the Province of Quebec and those (if any) belonging to the other provinces. The volume of business done by these latter societies is, however, very small, the amount of insurance in force at the present time approximating $16,000,000.

(6) Canadian Fraternal Society Insurance.

TABLE VII.

Amounts of insurance effected in Canada by Canadian fraternal societies in respective years 1892-1902.

Year	Companies reporting to Ontario dept.	Companies reporting to Dominion dept.	Total written
1892	$26,472,940	$ 7,848,000	$34,320,940
1893	22,860,150	10,494,500	33,354,650
1894	24,037,100	11,642,000	35,679,100
1895	21,254,250	13,239,000	34,493,250
1896	21,501,550	11,415,000	32,916,550
1897	23,271,946	13,878,500	37,150,446
1898	20,146,321	13,522,000	33,668,321
1899	22,566,864	8,957,500	31,524,364
1900	23,013,535	11,409,500	34,423,035
1901	26,009,830	9,368,000	35,377,830
1902	25,049,036	10,292,000	35,341,036

TABLE VIII.

Amounts of insurance in force in Canada carried by Canadian fraternal societies, 1892-1902.

Year	Companies reporting to Ontario dept.	Companies reporting to Dominion dept.	Total in force
1892	$134,552,809	$ 48,249,000	$182,801,809
1893	147,740,002	55,280,500	203,020,502
1894	155,203,278	64,085,500	219,288,778
1895	168,416,965	74,117,100	242,534,065
1896	175,964,809	83,636,000	259,600,809
1897	178,229,721	92,087,500	270,317,221
1898	185,427,999	98,253,500	283,681,499
1899	196,910,165	105,137,500	302,047,665
1900	208,686,025	110,085,500	318,771,525
1901	223,851,754	114,151,500	338,003,254
1902	234,540,988	119,163,500	353,704,488

As explained above, whilst these tables do not exhibit the actual volume of the life business of fraternal societies in Canada, they nevertheless show some interesting facts relating to the growth of this form of insurance.

First.—The amounts of new business effected during each year from 1892 to 1902 inclusive, have remained almost constant. Whilst the new business effected by the Canadian life companies (see Table I.) increased from $26,622,034 in 1892, to $48,045,662 in 1902, an increase of over eighty per cent., the new business of the Canadian fraternal societies increased only from $34,320,940 in 1892, to $35,341,036 in 1902. The largest amount effected in any one year, $37,150,446, was in 1897.

Secondly.—Fraternal society insurance, when once effected, has been retained to a remarkable extent. The increase during the ten years of the insurance carried by the Canadian life companies (see Table II.) was 98.92 per cent.; in the Canadian fraternal societies this increase was 93.50 per cent.

In addition to the Canadian societies, a number of the American fraternal orders have branches in Canada. From information supplied by the officers of these orders, the amount of life insurance carried by these American societies at the end of 1902 is found to be approximately $82,000,000.

The following is a summary of the fraternal life insurance in force in Canada at the end of 1902:

Canadian societies (Table VIII.)	$353,704,488
Quebec, etc., local societies	16,000,000
American societies (Canadian branches)	82,000,000
Total	$451,704,488

The lodge system has a firm hold upon the people of Canada, and fraternal insurance is wanted to a limited extent. It is in connection with these orders that the services of the skilled actuary should be sought for in the future, and if the society is to be kept upon a permanent basis, it must be under the command of the actuary.

The monthly premium rates of most of these societies have been increased from time to time, but in the great majority of cases they are still very inadequate, especially in respect of the older membership and the older ages.

In cases where the premium rate for new entrants has been largely increased, and where it approximates the net rate for a level premium insurance, it has been found that the influx of new members has been but very little retarded. Efforts to increase the rates upon the old membership, however, have for the most part met with fierce opposition, and the chief source of weakness in most of the orders is the carrying the older membership at very inadequate rates of premiums.

Fraternal society legislation in the future should be in the direction of compelling the proper reserves to be maintained in respect of all new insurances effected.

(7) Sickness Insurance in Canada.

Prior to 1896 sickness insurance was carried on wholly by the fraternal societies. Toward the close of 1895 a license was issued to an accident company to enable it to carry on in Canada the business of sickness insurance. Since that date other companies have obtained licenses to do sickness insurance, and at the present time there are ten companies transacting that class of business, all in connection with accident insurance.

Of the seven companies operating in 1901, only two regularly issue sickness policies not in combination with accident risks, and the others combined accident and sickness policies, and in rare cases, a separate sickness policy. The sickness claims paid during the past seven years by these companies are as follows:

Year		Year	
1896	$ 436	1900	$32,631
1897	5,912	1901	40,395
1898	3,077	1902	38,075
1899	10,821		

The great bulk of the sickness insurance is transacted by the friendly societies. There are eighty-two of these societies registered in the Province of Ontario for the purpose of doing sickness insurance, most of them in conjunction with funeral or death benefits. The amount of sick and funeral benefits paid by the societies in 1899 was $396,258, in 1900, $386,614, and in 1901, $424,305. There are also two societies reporting to the Dominion government, the amount of sick and funeral benefits paid by them in 1899 being $125,617, in 1900, $187,211, and in 1901, $220,906.

(8) Accident Insurance in Canada.

The licenses issued to companies for accident insurance in Canada also cover employers' liability insurance, and no division is made in the returns to the government of the personal accident and the employers' liability business.

The following table shows the progress of accident and employers' liability insurance in Canada for the past ten years:

TABLE IX.

Accident insurance in Canada.

Year	New and renewed	In force at end of year
1892	$ 59,086,779	$ 51,386,752
1893	61,123,499	51,210,334
1894	58,047,696	49,369,519
1895	66,631,381	64,350,131
1896	81,024,188	72,772,955
1897	91,003,712	81,868,409
1898	106,617,360	95,679,833
1899	109,746,785	97,061,360
1900	112,391,077	102,340,333
1901	121,727,447	111,881,818
1902	139,247,309	121,685,231

Legislation in relation to employers' liability and workmen's compensation for injuries is undertaken by the various provinces. Acts are in force in Ontario, British Columbia, Manitoba, and Nova Scotia based for the most part upon the English Act.

(9) Old Age Pensions, etc.

The granting of old age pensions or workmen's pensions has not as yet been under the consideration of the Dominion or of any of the provincial governments.

Pension schemes have recently been adopted by several railway companies, banks, and other industrial and monetary institutions, but the movement is still in its infancy in Canada.

RÉSUMÉ.

DEVELOPPEMENT AU CANADA DE L'ASSURANCE-VIE, ETC., ETC., ET TOUTES AUTRES OPÉRATIONS NÉCESSITANT L'AVIS DES ACTUAIRES.

PAR A. K. BLACKADAR.

Des statistiques publiées récemment font voir les progrès de l'assurance sur la vie au Canada en dix ans récemment écoulés, et aussi bien l'accroissement (dans la même période) des affaires des Ordres Fraternels Canadiens. Il est montré que l'accroissement de l'assurance a excédé considérablement celui de la population dans cette époque; car la population ne s'est accrue que de 11.13% pendant le cours de cette décade, mais les affaires de l'assurance sur la vie se sont augmentées plus de 80%,—et la quotité d'assurance sur la vie par tête de la population s'est accrue d'à-peu-près $108.10 en 1892 à $179.25 en 1902.

Les progrès des compagnies régulières d'assurance ont été bien plus marqués que ceux des ordres fraternels, ce qui est montré par l'accroissement intense et contenu des affaires nouvelles des compagnies, vis-à-vis de la stagnation ou même du décroissement des affaires nouvelles des ordres, dont l'apogée a été atteint en 1897. L'assurance industrielle a fait de grands progrès dans les six ans passés. Des polices seulement pour douer ne sont pas émises par les compagnies Canadiennes sinon jointes à d'autres formes d'assurance; et l'usage des annuités pour la vie est effectivement modéré.

La masse des assurances contre la maladie est pourvue par les Sociétés des Amis et par les Ordres Fraternels; mais depuis environ sept ans les compagnies d'assurance contre l'accident se sont chargées de l'assurance contre la maladie à part leurs affaires régulières.

Les gouvernements des provinces publient de temps en temps des ordonnances qui s'appliquent à la garantie des entrepreneurs employants et leur responsabilité à l'égard des lésions de leurs travailleurs, et il semble que cette branche d'assurance contre l'accident sera bien demandée à l'avenir.

Le sujet des pensions alimentaires pour vieillards et travailleurs invalides n'est pas encore sorti d'enfance au Canada.

KURZE NOTIZ.

ÜBER DAS WACHSTUM DER LEBENSVERSICHERUNG, ETC., ETC., SOWIE ANDERER AHNLICHER UNTERNEHMUNGEN, WELCHE DIE BEIHILFE VON AKTUAREN ERFORDERN.

VON A. K BLACKADAR.

Statistische Erhebungen zeigen die Fortschritte der Lebensversicherung in Canada während der letztverflossenen zehn Jahre, und zugleich auch das Wachstum des Geschäftsumfanges der canadischen Bruderorden innerhalb desselben Zeitraums. Es zeigt sich, dass die Zunahme der Lebensversicherung in dieser Periode weit grösser war als die Zunahme der Bevölkerung. Denn während die Bevölkerung in der fraglichen Dekade nur um 11.13% gewachsen ist, betrug die Zunahme der Lebensversicherungen über 80% und der Betrag an Versicherung pro Kopf der Bevölkerung ist von 108.10 im Jahre 1892 auf $179.25 im Jahre 1902 gestiegen.

Ferner war aber das Wachstum der eigentlichen Lebensversicherunsanstalten weit markanter als das der Bruderorden; stetige, anhaltende Zunahme der neuen Abschlüsse seitens der Gesellschaften gegenüber dem sich gleichbleibenden, oder selbst im geringfügigen Maasse sich vermindernden Abschluss neuer Versicherungsverträge seitens der Orden, deren lebhafteste Tätigkeit bezüglich neuer Abschlüsse in das Jahr 1897 fällt. Industrielle Versicherung hat gewaltige Fortschritte in den letztverflossenen sechs Jahren gemacht. Reine Ausstattungs-Policen werden seitens der canadischen Gesellschaften nicht ausgegeben, ausser etwa in Verbindung mit anderen Formen der Versicherung; und in Leibrenten ist das Geschäft ein ausserordentlich mässiges.

Der grösste Teil der Krankenversicherung fällt den Bruderorden und den Logengesellschaften zu, aber während der letzten sieben Jahre haben die Unfallversicherungsgesellschaften begonnen, in Verbindung mit Ihrer Unfallversicherung sich auch der Krankenversicherung zu widmen.

Die verschiedenen Provinzialregierungen erlassen von Zeit zu Zeit Verfügungen betreffs der Haftpflicht der Unternehmer ihren Arbeitern gegenüber im Falle von Schädigung derselben an ihrer Gesundheit, und es ist ein ziemlich lebhaftes Bedürfnis für derartige Versicherungen für die Zukunft vorhanden.

Alters- und Invaliditätsversicherungen stecken in Canada noch in den Kinderschuhen.

ÜBER DAS WACHSTUM DER DEUTSCHEN LEBENSVERSICHERUNG.

Von Dr. Lindemann (Gotha),
Mitglied des Deutschen Vereins für Versicherungs-Wissenschaft.

Der Begriff der deutschen Lebensversicherung will für die folgende Darstellung richtig gefasst sein. Eine Abhandlung über die Lebensversicherung *in Deutschland* würde zeigen, in welchem Masze sich der Deutsche im Verhältnis zu den Angehörigen anderer Nationen an der Lebensversicherung beteiligt; diese Aufgabe lässt sich aber mangels ausreichender Unterlagen nicht erfüllen. Hier soll und kann nur gezeigt werden, was deutsche Lebensversicherer leisten und geleistet haben.

Auch das Kaiserlich Deutsche Statistische Amt, welches nunmehr die Ausgabe der bis dahin jährlich erschienenen einschlägigen Abhandlungen im Hinblick auf die Neueinrichtung des Kaiserlichen Aufsichtsamtes für Privatversicherung in Berlin eingestellt hat, konnte nur eine „Statistik der deutschen Lebensversicherungs-Gesellschaften" darbieten. Erst die letztgenannte Behörde wird imstande sein, auf Grund der einlässlichen Berichterstattung, die ihm von den in Deutschland arbeitenden Lebensversicherungs-Gesellschaften zu liefern ist, die innerhalb dieses Gebietes abgeschlossenen Lebensversicherungen nach einheitlichen Gesichtspunkten statistisch zu behandeln. Die Berichte des Eidgenössischen Versicherungsamtes geben alljährlich einen Überblick über das allgemeine wie über das schweizerische Geschäft der dort zugelassenen Anstalten, während die seit drei Jahren erscheinenden amtlichen österreichischen Berichte zwar das Gesamtgeschäft der einheimischen, aber hauptsächlich nur das österreichische Geschäft der auswärtigen Lebensversicherungs-Gesellschaften zur Darstellung bringen. Allerdings ist die statistische Arbeit für Osterreich-Ungarn weit umfangreicher als die für die Schweiz. Es steht aber zu hoffen, dass die neue deutsche Aufsichtsbehörde trotz der noch ausgedehnteren Materie ihre Aufgabe in der vorbezeichneten Art des Eidgenössischen Amtes lösen wird. Jedenfalls kann an dieser Stelle nur erörtert werden, wie die von deutschen Anstalten betriebene Lebensversicherung sich vom Anbeginn entwickelt hat.

Den Hauptzweig bildet die reguläre Kapitalversicherung auf den Todesfall in den verschiedenen Formen der lebenslänglichen und abgekürzten Lebensversicherung. Nur diejenigen deutschen Gesellschaften sind hier berücksichtigt worden, die diesen Hauptzweig pflegen; nicht aber Sterbekassen oder Anstalten, welche sich allein mit der Erlebensfallversicherung und (oder) der Rentenversicherung befassen. Die grosse Mehrzahl der Lebensversicherungs-Gesellschaften betreibt jedoch ausserdem — wenn auch nicht durchweg seit ihrem Bestehen — die Versicherung nur auf den Erlebensfall (Alters-, Aussteuer-, Militärdienstversicherung); eine gewisse Anzahl schliesst auch Sterbekasse-Versicherungen ab oder hat seit Jahren die Volksversicherung mit geringen Summen, zumeist ohne ärztliche Untersuchung und mit wöchentlicher Prämienzahlung aufgenommen; manche betreiben ferner die Renten-

versicherung. Es war der Wunsch des Verfassers, unter Zusammenfassung der betreffenden Jahresergebnisse der einzelnen Gesellschaften durchweg so zu verfahren, wie es seit einer Reihe von Jahren in der Abhandlung über „Zustand und Fortschritte der deutschen Lebensversicherungs-Anstalten“ geschieht, d. h. Jahr für Jahr die Resultate des Versicherungsgeschäftes getrennt nach den erwähnten Versicherungsarten zu behandeln, dagegen die finanziellen Resultate insgesamt für alle jene Zweige zu erledigen. Leider ist die Aufgabe der Berichterstattung für den IV. Internationalen Kongress erst ziemlich spät an den Verfasser herangetreten, und es mussten daher auch aus früherer Zeit die Ziffern der seit 1852 alljährlich ausgegebenen Schrift „Zustand und Fortschritte“ zugrundegelegt werden.

Die nachfolgende Tabelle I — *Geschäftsentwicklung* der deutschen Anstalten von 1829 bis 1901 — ist unverändert der ebenerwähnten Abhandlung entnommen. In dieser Übersicht war bis zum Jahre 1893 nach Möglichkeit die Zahl der versicherten Personen aufgeführt; von da ab ist bis auf vier Anstalten, deren Geschäftsbericht nur die Personen berücksichtigt, die Zahl der Policen eingestellt. Die Versicherungssummen, nach Zehnjahresperioden betrachtet, stellten sich insgesamt:

Ende 1831	auf	21,817,881	Mark
“ 1841	“	90,493,001	“
“ 1851	“	149,598,553	“
“ 1861	“	349,816,419	“
“ 1871	“	1,074,352,764	“
“ 1881	“	2,235,151,275	“
“ 1891	“	3,871,768,798	“
“ 1901	“	6,701,426,408	“

Die erste Milliarde wurde im Jahre 1870, also erst nach 41jährigem Bestehen der deutschen Lebensversicherung, erreicht, alsdann aber

die zweite Milliarde nach	9 Jahren
die dritte Milliarde nach	8 Jahren
die vierte Milliarde nach	5 Jahren
die fünfte Milliarde nach	4 Jahren
die sechste Milliarde nach	3 Jahren

Innerhalb der eigentlichen Lebensversicherung macht sich eine bedeutsame Wandlung in der Beteiligung nach lebenslänglichen und abgekürzten Versicherungen bemerkbar. Bei denjenigen Anstalten, die in ihren Rechenschaftsberichten hierüber Auskunft geben — in Betracht kommen etwa $^9/_{10}$ der Gesamtsumme, weshalb die folgenden Ziffern Anspruch auf Allgemeingiltigkeit haben dürfen —, betrugen durchschnittlich in Prozent des Bestandes die Versicherungen:

	Auf Lebenszeit	Mit abgekürzter Dauer
	%	%
1881	49.47	17.05
1886	56.58	29.06
1891	43.63	43.53
1896	33.08	54.99
1901	64.02	65.30

Hiernach sind die abgekürzten oder Alternativ-Versicherungen, welche im Jahre 1881 erst etwas über $^1/_6$ des Lebensversicherungsbestandes ausmachten, bis Ende 1901 auf etwa $\frac{2}{3}$ des Bestandes angewachsen.

Die Tabelle II behandelt — soweit die angesammelten Unterlagen zur Hand waren — die Entwicklung der *Nebenzweige* bei den deutschen Lebensversicherungs-Gesellschaften. Aus früheren Jahren ist die Zahl der Policen und teilweise auch der Summen wegen unzureichender Trennung der Geschäftszweige nicht durchgängig festzustellen; aus diesem Grunde sind auch zur Zeit noch die Sterbekasse-Versicherungen zweier kleiner Anstalten im Zugang und Bestand der eigentlichen Lebensversicherung mit enthalten. Abgesehen hiervon wird die *kleine Lebensversicherung* jetzt von 25 Anstalten betrieben, von denen aber nur 20 neue Geschäfte dieser Art abschliessen. Bis Ende der 80er Jahre beschränkte sich dieselbe auf Begräbnisgeld- und Sterbekasse-Versicherungen; seit dieser Zeit tritt jedoch die Volks- oder Arbeiterversicherung schnell und kräftig in den Vordergrund. Der Bestand war Ende 1890: 62⅓ Millionen Mark, Ende 1901: 637¾ Millionen; er hat also innerhalb eines Zeitraums von nur 11 Jahren um mehr als das Zehnfache zugenommen. Den weitaus grössten Teil des Bestandes wie auch des Neuzugangs bilden die beiden Gesellschaften „Victoria“ und „Friedrich Wilhelm“ in Berlin. In der *Erlebensfallversicherung,* die von 40 unter 45 Anstalten betrieben wird und deren Bestand sich am Schlusse des Jahres 1901 auf 474,459 Versicherungen über 766,829,258 Mark bezifferte, hat der Zugang neuerdings etwas nachgelassen, vermutlich aus dem Grunde, weil an Stelle dieser Versicherungsart mehr die abgekürzte Lebensversicherung gewählt wird. Zu beachten ist das unverhältnismässig hohe Wachstum des Gesamtbestandes im Jahre 1894, in welchem eine in Hannover ansässige Anstalt mit einem grossen Bestande solcher Versicherungen den Betrieb der eigentlichen Lebensversicherung aufnahm und daher in der Tabelle auch mit jenem Hauptzweige zum erstenmal erscheint. Die *Rentenversicherung* endlich hat in Deutschland niemals eine Bedeutung, wie sie für manche andere Länder zu verzeichnen ist, gewonnen; in Zeiten des Zinsrückganges erfährt der Zugang gewöhnlich eine kleine Erhöhung. Ihr Bestand belief sich bei 34 deutschen Lebensversicherungs-Anstalten Ende 1901 auf 46,188 Versicherungen über 17,493,870 Mark Rente.

Die Tabelle III behandelt die *finanziellen* Ergebnisse nach verschiedenen Richtungen, wobei die Angaben von „Zustand und Fortschritte“ gleichfalls nach Möglichkeit benutzt wurden. Da jene Statistik zum erstenmal für das Jahr 1852 erschienen ist, hatte für die Jahre 1829-51 eine Ergänzung an der Hand der alten Rechenschaftsberichte stattzufinden; erklärlicherweise machten sich dabei mehrere Schätzungen nötig. Den Jahreseinnahmen sind vom Jahre 1874 an die Zinsen und sonstigen Einnahmen als Teilbeträge in Klammern beigefügt; es ist nicht ohne Interesse, das Verhältnis zwischen diesen Posten und den Gesamteinnahmen, deren Differenz also die Prämieneinnahme bildet, zu verfolgen. Seit dem Jahre 1897 ist unterschiedslos die gesamte Kapital- und Rentenversicherung ebenso bei den Einnahmen wie bei den „Geschäftsfonds“ berücksichtigt worden. Die Aktienkapitalien, denen die Gründungsfonds einzelner jüngerer Gegenseitigkeitsanstalten zugezählt wurden, haben bei einigen Gesellschaften noch für andere Geschäftszweige (z. B. Feuer und Unfall) mit zu haften. Dies gilt vorzugsweise für das mit nunmehr 44¼ Millionen Mark volleingezahlte Aktienkapital der Bayerischen Hypotheken- und Wechselbank in München, deren Lebensversicherungsgeschäft eine im Verhältnis nur geringe Bedeutung

hat. Bei Ausscheidung dieses Betrages ergibt sich, dass zur Zeit die Bareinzahlung bei den deutschen Lebensversicherungs-Aktiengesellschaften nicht ganz den vierten Teil des nominell begebenen Aktienkapitals ausmacht.

Genau 100 Jahre nach Errichtung der ersten Lebensversicherungs-Gesellschaft, der „Amicable" in London, wurde im Jahre 1806 von dem als Handelsschriftsteller bekannten Wilhelm Benecke in Hamburg der Versuch gemacht, eine solche Anstalt für Deutschland ins Leben zu rufen. Die misslichen Zeitumstände, in Verbindung mit gleich anfänglich schweren Verlusten, liessen das Unternehmen schon nach kurzer Frist scheitern. Ein zweiter Versuch, im Jahre 1822 der damals in Elberfeld begründeten Feuerversicherungs-Gesellschaft die Lebensversicherung anzugliedern, schlug fehl, ehe überhaupt eine Versicherung zustandegekommen war. Bis in das Jahr 1823 zurück lässt sich verfolgen, wie Ernst Wilhelm Arnoldi in Gotha, der einige Jahre vorher die dortige Feuerversicherungsbank gegründet hatte, dem Gedanken einer ebenfalls auf Gegenseitigkeit und Öffentlichkeit beruhenden Lebensversicherungsbank für Deutschland nachging. Mitte 1827 wurde die Gründung dieser Anstalt behördlicherseits genehmigt und letztere Anfang 1829 mit einem inzwischen angesammelten Bestande von etwa 800 ärztlich untersuchten Versicherten und 4 Millionen Mark Versicherungssumme eröffnet. Schon einen Monat zuvor begann — allerdings ohne Bestand — die Deutsche Lebensversicherungs-Gesellschaft in Lübeck ihren Geschäftsbetrieb. Es war dies ein gemischtes Aktienunternehmen, insofern neben den Aktionären auch die Versicherungsnehmer am Gewinn beteiligt wurden; im Gegensatz zur Gothaer Bank, die sich von jeher auf den Abschluss eigentlicher Lebensversicherungen beschränkt hat, wurden von Lübeck alsbald auch Aussteuer- und Rentenversicherungen übernommen. Zwei Jahre darauf (1831) traten zwei Gegenseitigkeitsanstalten in Leipzig und Hannover hinzu. Im Jahre 1836 fand die Eröffnung des Lebensversicherungsgeschäftes statt bei der Berlinischen Lebensversicherungs-Gesellschaft und der Münchener Hypotheken- und Wechselbank, von denen die erste ein gemischtes, die letzte für längere Zeit ein reines Aktienunternehmen mit festen Prämien war. Infolge eines der Berlinischen Gesellschaft erteilten Privilegs waren Neubildungen dieser Art in Preussen für 15 Jahre ausgeschlossen. Während in der Zwischenzeit nur 4 neue Anstalten — 2 in Hamburg, je eine in Braunschweig und Frankfurt a/M. — entstanden, traten in den 50er Jahren des letzten Jahrhunderts (1852 bis 1857) 11 neue Gesellschaften, darunter 6 in Preussen, auf den Plan. Gegen Ende dieses Jahrzehnts verschwanden 2 Anstalten von der Bildfläche. Den 60er Jahren entstammen 9 neue Lebensversicherungs-Anstalten, von denen 3 im Anschluss an schon bestehende anderweitige Versicherungs-Organisationen erstanden und von dene eine nachmals ausfiel. Die 70er Jahre brachten neben einzelnen Neugründungen von nur kurzem Bestande 7 Gesellschaften hervor, von denen eine Gegenseitigkeitsanstalt sich zur Zeit im Konkurse befindet und eine Aktiengesellschaft vor einigen Jahren mit dem gleichfalls auf dem Aktiensystem beruhenden „Nordstern" in Berlin vereinigt wurde. Während sodann in die 80er Jahre die Errichtung von nur 2 neuen Lebensversicherungs-Anstalten fällt, eröffneten in den 90er Jahren 8 Gesellschaften, von denen schon vorher eine die Militärdienst- und eine zweite die Sterbekassen-Versicherung gepflegt hatte, den Betrieb der eigentlichen Lebensversicherung. Endlich wurden im Jahre 1900 zwei Lebensversicherungs-Anstalten neu gegründet. Es bestanden demnach am Schlusse des Jahres

	Anstalten	Darunter Gegenseitigkeit	Auf Aktien
1830	2	1	1
1840	6	3	3
1850	10	5	5
1860	19	7	12
1870	28	12	16
1880	36	17	19
1890	37	18	19
1900	47	21	26
1901	45	18	27

Im letzten Berichtsjahre 1901 haben einige kleine Gegenseitigkeitsanstalten, mit Rücksicht auf die Anforderungen der neuen deutschen Aufsichtsbehörde, entweder sich in eine Aktiengesellschaft umgewandelt oder den Anschluss an eine solche gesucht.

Mannigfach sind die Momente, welche die Entwicklung der Lebensversicherung in Deutschland günstig oder ungünstig beeinflusst haben. Da hier diese Institution im ersten Viertel des letzten Jahrhunderts noch so gut wie unbekannt war, hatten die ältesten Gesellschaften mühsame Pionierarbeit auf Neuland zu leisten. Mehr als 40 Jahre hindurch fehlte es daselbst an einer politischen Einheit; infolgedessen konnten sich auch allgemeine wirtschaftliche Verbände (wie der Zollverein) nur allmählich und in beschränktem Masze bilden. Das vorerwähnte preussische Privileg auf 15 Jahre war der Ausbreitung der Lebensversicherung nicht förderlich; weiss man doch, wie belebend die Konkurrenz wirkt. In den 50er Jahren zeigte sich ein Aufschwung ebenso in der deutschen Volkswirtschaft überhaupt (Aktienwesen, Eisenbahnen u. s. w.), wie insonderheit auf dem Gebiete der Lebensversicherung. Dass die deutschen Aktiengesellschaften entweder von vornherein oder im Laufe der Zeit ihre Lebensversicherten am Gewinn beteiligten, trug ebenfalls zur Förderung bei: in der Hauptsache werden auch von diesen Anstalten Versicherungen mit Gewinnanteil abgeschlossen, und letzteren wird der ganz überwiegende Teil der Reinüberschüsse als Dividende zugewiesen. Die Einwirkung kriegerischer und politischer Unruhen wird aus unserer Tabelle I für die Jahre 1848, 1866 und 1870/71 ersichtlich. Das Jahr 1866 ist daneben in finanzieller Hinsicht bemerkenswert: die für damalige Verhältnisse ausserordentlich hohe Sterbefallausgabe von 13½ Millionen Mark — vgl. Tabelle III — enthält 2½ Millionen allein für Cholerafälle. In neuerer und neuester Zeit konnte die stetige Entwicklung der deutschen Lebensversicherung durch einige wirtschaftliche Depressionen nicht wesentlich beeinträchtigt werden; das auch unter solchen Umständen beträchtliche Wachstum ist allerdings auf eine immer rührigere und planvollere Tätigkeit der leitenden und werbenden Anstaltsorgane zurückzuführen.

Am Schlusse des Jahres 1901 waren bei den deutschen Lebensversicherungs-Gesellschaften in Kraft

	1,534,141	eigentliche Lebensversicherungen	über 6,701,426,408 M.
	3,528,452	Volks- u. s. w. Versicherungen	" 637,763,259 "
	474,459	Erlebensfall-Versicherungen	" 766,829,258 "
insgesamt	5,537,052	Kapitalversicherungen	über . . . . . 8,106,018,925 M.
und ausserdem	46,188	Rentenversicherungen	" . . . . . 17,493,870 "

Das sind keine überwältigende Ziffern, zumal wenn sie mit den Gesamtbeständen in einzelnen nichtdeutschen Staatsgebieten verglichen werden. Aber neben der *Stetigkeit der Entwicklung* ist vor allem die *Ständigkeit des laufenden Geschäfts* hervorzuheben: der anormale Abgang durch Rückkauf und Aufgabe beträgt in der eigentlichen Lebensversicherung nur etwas über 2 (im Jahre 1901: 2,22) Prozent des im Berichtsjahre vorhanden gewesenen Bestandes und auch die kleine Lebensversicherung mit ihren naturgemäss grösseren Ausfällen weist doch im Verhältnis mässige Abgangszahlen auf. Nicht zu vergessen ist ferner die *geringe Höhe des Verwaltungs- und Spesenaufwandes* — gleichgiltig, welcher von den verschiedenen Vergleichungsmaszstäben zur Anwendung kommt. Diesem allen verdankt die solide deutsche Lebensversicherung ihren guten Klang!

TABELLE I.

Entwicklung der eigentlichen Lebensversicherung (regulären Todesfallversicherung) bei den deutschen Anstalten von 1829 bis 1901.

Jahr	Zahl der Anstalten	Neuer Brutto-Zugang im Laufe des Jahres		Bestand am Ende des Jahres			Rein-Zuwachs im Laufe des Jahres			
							absolut		In % des Bestandes am Anfange des Jahres	
		Personen resp. Policen	Versicher.-Summe M.	Personen resp. Policen	Versicherungs-summe M.	Durchschnitt pro Person resp. Police M.	Personen resp. Policen	Vers.-Summe M.	Personen resp. Policen	Summe
1829	2	1,462	8,128,140	1,448	8,077,200	5,578	1,448	8,077,200	.....	.....
1830	2	669	3,991,890	2,072	11,768,190	5,680	624	3,690,990	43.09	45.70
1831	4	2,300	10,872,936	4,248	21,817,881	5,136	2,176	10,049,691	105.02	85.31
1832	4	1,667	8,790,750	5,581	28,483,491	5,104	1,333	6,665,610	31.38	30.55
1833	4	1,537	7,286,952	6,818	33,867,168	4,967	1,237	5,383,677	22.16	18.90
1834	4	1,584	6,773,937	8,057	38,643,345	4,796	1,239	4,776,177	18.17	14.10
1835	4	1,612	7,251,186	9,274	43,701,639	4,712	1,217	5,058,294	15.10	13.09
1836	5	2,072	8,791,953	10,852	49,933,011	4,601	1,578	6,231,372	17.02	14.26
1837	6	3,488	13,810,405	13,778	61,241,242	4,445	2,926	11,308,231	26.96	22.65
1838	6	2,999	11,476,597	16,067	69,487,289	4,325	2,289	8,246,047	16.61	13.46
1839	6	2,809	10,914,345	17,978	76,824,038	4,273	1,911	7,336,749	11.89	10.56
1840	6	2,794	10,150,936	19,852	83,320,333	4,197	1,874	6,496,295	10.42	8.46
1841	6	2,870	10,830,548	21,626	90,493,001	4,184	1,774	7,172,668	8.94	8.61
1842	7	3,047	10,865,130	23,503	97,064,356	4,130	1,877	6,571,355	8.68	7.26
1843	7	2,996	10,702,255	25,294	103,571,662	4,095	1,791	6,507,306	7.62	6.70
1844	7	2,975	10,938,050	26,930	110,235,593	4,093	1,636	6,663,931	6.47	6.43
1845	7	2,762	10,085,120	28,463	115,372,872	4,053	1,533	5,137,279	5.69	4.66
1846	9	3,016	11,118,984	30,277	121,656,861	4,018	1,814	6,283,989	6.37	5.45
1847	9	2,987	12,221,780	31,904	128,054,570	4,014	1,627	6,397,709	5.37	5.26
1848	10	2,423	9,962,839	32,557	130,975,262	4,023	653	2,920,692	2.02	2.28
1849	10	3,883	12,667,327	34,734	136,641,640	3,934	2,177	5,666,378	6.69	4.33
1850	10	4,101	13,566,750	36,955	142,807,010	3,864	2,221	6,165,370	6.39	4.51
1851	10	3,942	13,455,559	38,786	149,598,553	3,857	1,831	6,791,543	4.95	4.76
1852	10	4,334	15,814,080	41,912	157,822,548	3,766	3,126	8,223,995	8.06	5.50
1853	12	4,762	17,875,806	44,572	167,887,605	3,767	2,660	10,065,057	6.35	6.38
1854	16	5,334	19,873,665	47,768	179,389,284	3,755	3,196	11,501,679	7.17	6.85
1855	17	8,144	28,038,996	54,333	198,693,645	3,657	6,565	19,304,361	13.74	10.76
1856	17	9,567	31,508,112	59,796	219,491,082	3,671	5,463	20,797,437	10.05	10.47
1857	20	10,551	36,984,165	67,316	245,539,290	3,648	7,520	26,048,208	12.58	11.87
1858	19	11,707	39,682,932	73,877	268,219,536	3,631	6,561	22,680,246	9.75	9.24
1859	19	10,128	35,558,082	80,895	289,421,073	3,578	7,018	21,201,537	9.50	7.90
1860	19	12,274	40,553,244	88,507	315,655,473	3,566	7,612	26,234,400	9.41	9.06
1861	20	15,215	50,612,022	99,084	349,816,419	3,531	10,577	34,160,946	11.95	10.82
1862	21	21,391	69,787,302	115,250	400,109,370	3,472	16,166	50,292,951	16.32	14.38
1863	21	30,005	91,902,483	135,921	463,234,062	3,408	20,671	63,124,692	17.94	15.78
1864	22	38,686	104,093,289	163,940	535,723,251	3,268	28,019	72,489,189	20.61	15.65

TABELLE I.—Fortgesetzt.

Jahr	Zahl der Anstalten	Neuer Brutto-Zugang im Laufe des Jahres		Bestand am Ende des Jahres			Rein-Zuwachs im Laufe des Jahres			
							absolut		In % des Bestandes am Anfange des Jahres	
		Personen resp. Policen	Versicher.-Summe M.	Personen resp. Policen	Versicherungssumme M.	Durchschnitt pro Person resp. Police M.	Personen resp. Policen	Vers.-Summe M.	Personen resp. Policen	Summe
1865	22	50,538	125,935,812	200,627	623,001,195	3,105	36,687	87,277,944	22.38	16.29
1866	23	42,105	112,107,219	221,246	676,620,813	3,058	20,619	53,619,618	10.28	8.61
1867	25	58,224	142,214,322	256,201	763,255,467	2,979	34,955	86,634,654	15.80	12.80
1868	26	65,224	159,111,429	294,845	860,740,683	2,919	38,644	97,485,216	15.08	12.77
1869	28	72,849	180,752,211	338,189	972,567,180	2,876	43,344	111,826,497	14.70	12.99
1870	28	44,036	118,169,535	348,930	1,007,725,017	2,888	10,741	35,157,837	3.18	3.61
1871	28	46,992	133,581,201	367,665	1,074,352,764	2,922	18,735	66,627,747	5.37	6.61
1872	29	58,105	179,095,851	398,863	1,195,145,307	2,996	31,198	120,792,543	8.49	11.24
1873	32	63,061	210,888,687	437,427	1,337,818,734	3,058	38,564	142,673,427	9.67	11.94
1874	36	67,571	235,011,795	476,248	1,482,399,520	3,113	38,821	144,580,786	8.87	10.81
1875	37	67,086	242,555,347	508,519	1,622,672,300	3,191	32,271	140,272,780	6.78	9.46
1876	36	63,526	245,961,486	531,364	1,753,074,039	3,299	22,845	130,401,739	4.49	8.04
1877	35	58,169	230,409,707	542,416	1,845,544,814	3,402	11,052	92,470,775	2.08	5.27
1878	35	55,426	215,324,611	556,834	1,930,909,547	3,468	14,418	85,364,733	2.66	4.63
1879	36	54,940	214,663,235	574,370	2,024,404,442	3,525	17,536	93,494,895	3.15	4.84
1880	36	56,309	224,380,501	595,626	2,129,333,381	3,575	21,256	104,928,939	3.70	5.18
1881	35	57,743	232,196,824	614,016	2,235,151,275	3,640	18,390	105,817,894	3.09	4.97
1882	34	60,536	250,710,684	633,452	2,354,990,670	3,718	19,436	119,839,395	3.17	5.36
1883	34	61,752	257,985,476	656,300	2,489,367,285	3,793	22,848	134,376,615	3.61	5.71
1884	34	64,800	280,545,699	683,816	2,650,985,839	3,877	27,516	161,618,554	4.19	6.49
1885	34	62,813	279,456,701	710,930	2,808,238,312	3,950	27,114	157,252,473	3.97	5.93
1886	34	63,184	280,943,387	740,536	2,970,673,536	4,012	29,606	162,435,224	4.16	5.78
1887	34	63,653	282,383,176	768,526	3,126,593,104	4,068	27,990	155,919,568	3.78	5.25
1888	34	66,298	293,652,866	800,073	3,293,808,223	4,117	31,547	167,215,119	4.10	5.35
1889	35	67,022	305,243,507	827,772	3,461,865,001	4,182	27,699	168,056,778	3.46	5.10
1890	37	70,847	324,668,684	864,126	3,662,217,977	4,238	36,354	200,352,976	4.39	5.79
1891	38	75,812	362,812,122	898,660	3,871,768,798	4,308	34,534	209,550,821	4.00	5.72
1892	38	83,108	400,654,718	939,462	4,104,753,429	4,369	40,802	232,984,631	4.54	6.02
1893	40	88,335	398,290,620	1,017,738	4,325,465,698	4,250	42,711	220,712,269	4.38	5.38
1894	41	96,737	423,366,676	1,074,089	4,572,664,204	4,257	56,351	247,198,506	5.54	5.71
1895	42	99,262	447,353,230	1,125,408	4,830,495,710	4,292	51,319	257,831,506	4.78	5.64
1896	43	103,194	479,300,219	1,181,958	5,122,475,769	4,334	56,550	291,980,059	5.02	6.04
1897	43	122,677	509,410,283	1,254,252	5,439,437,838	4,337	72,294	316,962,069	6.12	6.19
1898	44	121,006	535,285,382	1,360,387	5,777,498,001	4,247	76,025	328,886,467	6.06	6.05
1899	45	123,206	550,549,983	1,425,745	6,105,321,071	4,282	65,358	327,823,070	4.80	5.65
1900	47	123,718	553,590,313	1,475,529	6,404,271,912	4,330	49,784	298,950,841	3.49	4.90
1901	45	119,005	561,248,168	1,534,141	6,701,426,408	4,368	58,612	297,154,496	3.97	4.64

TABELLE II.

Entwicklung der Nebenversicherungszweige bei den deutschen Lebensversicherungsanstalten von 1868 bis 1901.

JAHR	I. Begräbnisgeld-, Volks- u. Arbeiter-Versicherungen				II. Versicherungen auf den Lebensfall. (Alters-, Aussteuer-, Militärdienst-, Sparkasse-Versicher.)				III. Rentenversicherungen. Bestand am Ende des Jahres	
	Zugang im Laufe des Jahres		Bestand am Ende des Jahres		Zugang im Laufe des Jahres		Bestand am Ende des Jahres			
	Policen	Vers. Summe M.	Policen	Vers. Summe M.	Policen	Vers. Summe M.	Policen	Vers. Summe M.	Policen	Vers. Summe M.
1868	.....	.....	.....	20,764,653	.....	.....	.....	17,823,192	.....	1,081,866
1869	.....	.....	.....	22,339,618	.....	.....	.....	22,776,039	.....	1,160,241
1870	.....	.....	.....	22,520,514	.....	.....	.....	23,872,698	.....	1,203,291
1871	.....	.....	.....	24,468,075	.....	.....	.....	30,245,772	.....	1,262,052
1872	.....	.....	.....	27,585,072	.....	.....	.....	34,596,048	.....	1,382,028
1873	.....	.....	.....	26,950,662	.....	.....	.....	40,790,958	.....	1,417,602
1874	.....	.....	.....	27,269,592	.....	.....	.....	53,625,778	.....	1,815,910
1875	.....	.....	.....	27,383,250	.....	.....	.....	60,948,755	.....	1,879,837
1876	.....	.....	.....	24,659,817	.....	.....	.....	71,019,767	.....	1,956,344
1877	.....	.....	.....	23,130,778	.....	.....	.....	79,895,717	.....	1,988,655
1878	.....	.....	.....	22,991,711	.....	.....	.....	89,420,908	.....	1,644,678
1879	.....	.....	.....	22,954,591	.....	.....	.....	97,651,423	.....	1,781,905
1880	.....	.....	.....	23,105,472	.....	.....	.....	112,035,252	.....	1,995,994
1881	.....	.....	.....	22,951,142	.....	.....	.....	126,703,642	.....	2,332,578
1882	.....	.....	.....	24,153,808	.....	.....	.....	139,510,965	.....	2,573,515
1883	.....	.....	.....	27,110,837	.....	.....	.....	154,720,720	.....	2,865,055
1884	.....	.....	.....	30,975,694	.....	.....	.....	173,375,840	.....	3,248,681
1885	.....	.....	.....	33,353,947	.....	.....	.....	195,441,299	.....	3,724,660
1886	.....	.....	.....	36,445,908	.....	.....	.....	212,875,051	.....	4,265,851
1887	.....	.....	.....	40,567,807	.....	.....	.....	226,836,866	.....	4,868,992
1888	.....	.....	.....	45,506,342	.....	.....	.....	251,631,793	.....	5,487,090
1889	.....	.....	.....	54,506,403	.....	.....	.....	274,697,708	.....	6,264,404
1890	.....	.....	.....	62,336,761	.....	.....	.....	297,817,421	.....	6,842,707
1891	.....	.....	.....	69,317,866	.....	.....	.....	321,531,751	.....	7,502,461
1892	.....	.....	.....	95,620,755	.....	.....	.....	339,361,681	.....	8,057,072
1893	.....	.....	.....	123,418,425	.....	.....	.....	382,261,127	.....	8,527,606
1894	.....	.....	.....	156,047,488	.....	.....	.....	625,503,754	.....	9,201,214
1895	.....	.....	.....	195,148,070	.....	.....	.....	662,281,040	.....	10,302 566
1896	.....	.....	.....	270,458,123	.....	.....	.....	691,220,573	.....	11,289,876
1897	807,703	130,623,170	1,938,078	357,710,169	38,981	67,583,589	445,318	716,830,206	39,929	12,356,528
1898	705,496	128,409,256	2,376,276	437,009,243	37,224	63,834,848	468,455	751,370,842	41,882	13,317,121
1899	620,888	120,316,188	2,709,579	498,833,446	32,079	58,102,474	474,301	765,153,222	43,176	14,363,898
1900	642,136	122,295,443	3,176,059	577,869,593	27,789	51,469,014	473,225	767,253,387	44,078	15,890,773
1901	586,458	111,988,523	3,528,452	637,763,259	26,977	48,972,357	474,459	766,829,258	46,188	17,493,870

TABELLE III.

Finanzielle Ergebnisse der deutschen Lebensversicherungs-Anstalten von 1829 bis 1901.

JAHR	Einnahme an Prämien, Zinsen, etc. M.	Ausgabe für zahlbare Sterbefälle M.	Geschäftsfonds excl. Aktienkapital M.	Aktienkapital	
				Nominell M.	Bareingezahlt M.
1829	392,583	50,940	321,426	1,515,600	151,560
1830	508,205	146,518	650,256	1,515,600	151,560
1831	894,787	223,954	1,245,903	1,515,600	151,560
1832	1,079,142	430,351	1,869,141	1,515,600	151,560
1833	1,312,313	341,276	2,501,622	1,515,600	151,560
1834	1,529,513	454,096	3,437,856	1,515,600	151,560
1835	1,752,377	687,229	4,274,366	1,515,600	151,560
1836	1,999,364	811,062	5,140,305	13,087,025	9,322,985
1837	2,507,128	943,608	6,434,148	14,801,310	11,037,270
1838	2,887,219	957,640	7,746,665	16,515,595	12,751,555
1839	3,269,210	1,146 628	9,237,641	16,515,595	12,751,555
1840	3,494,006	1,409,272	10,793,780	18,277,538	14,513,498
1841	3,858,680	1,526,133	12,203,538	18,277,538	14,513,498
1842	4,113,758	1,830,739	14,133,094	21,658,451	17,894,411
1843	4,430,496	1,673,650	15,781,588	21,658,451	17,894,411
1844	4,693,462	1,821,696	17,807,439	21,658,451	17,894,411
1845	4,996,170	2,116,221	19,736,570	31,944,131	18,922,931
1846	5,355,593	2,318,615	21,966,603	33,658,416	20,637,216
1847	5,791,365	2,759,901	24,066,879	33,658,416	20,637,216
1848	5,843,563	3,153,317	25,696,663	36,872,701	22,501,501
1849	6,171,647	3,237,692	27,213,070	38,586,986	24,215,786
1850	6,345,055	3,413,103	28,707,321	42,015,556	27,644,356
1851	6,734,376	2,843,455	31,003,299	42,029,956	27,658,756
1852	7,098,417	3,344,526	32,982,543	44,439,425	34,709,684
1853	7,463,622	3,564,717	35,723,664	47,334,289	35,958,718
1854	7,817,904	3,698,298	37,921,530	47,646,919	36,001,348
1855	8,869,320	4,191,747	40,947,000	67,267,999	41,313,728
1856	9,514,746	4,425,708	43,498,371	65,017,999	40,108,228
1857	10,356,486	5,128,557	46,877,424	73,094,569	40,936,378
1858	11,380,791	5,652,486	50,064,252	71,344,569	42,640,198
1859	12,320,088	5,244,399	55,186,056	71,344,569	42,640,198
1860	13,432,998	5,322,693	60,365,574	88,844,569	44,380,198
1861	15,003,285	6,167,973	66,420,843	101,988,856	45,843,724
1862	16,895,526	6,224,406	73,361,076	101,988,856	45,844,027
1863	19,330,878	7,748,277	82,687,896	103,430,965	47,353,678
1864	21,886,131	8,046,975	90,025,442	115,455,856	48,663,706
1865	24,940,611	9,033,099	99,880,338	115,455,856	48,663,706
1866	27,453,777	13,519,935	107,242,764	118,755,856	49,323,706
1867	30,875,481	11,340,249	116,753,100	124,884,856	50,708,506
1868	34,213,452	12,605,898	128,861,202	124,905,856	50,711,956
1869	38,597,295	13,671,249	143,166,852	126,240,856	50,915,956
1870	41,703,216	16,468,788	158,320,110	126,219,856	50,854,156
1871	45,180,414	18,900,996	172,447,185	126,528,856	50,959,927
1872	50,270,451	17,699,217	193,101,786	126,918,856	50,985,727
1873	55,029,855	19,413,366	213,856,503	139,353,859	53,529,430
1874	62,621,169 (Darunter für Zinsen, etc.) 12,759,404	21,762,892	244,845,897	142,833,757	57,717,204
1875	67,959,391 (13,401,532)	24,250,990	267,604,553	142,356,740	57,587,128
1876	73,067,515 (14,529,422)	25,408,315	292,810,974	147,559,311	58,345,185
1877	77,853,245 (15,589,643)	26,901,624	319,544,817	146,230,811	57,315,035
1878	82,426,556 (16,830,016)	28,477,495	348,799,570	149,223,061	60,304,385
1879	87,581,705 (18,226,688)	30,241,501	379,010,294	149,198,761	60,289,510

TABELLE III.—Fortgesetzt.

JAHR	Einnahme an Prämien Zinsen, etc. M. (Darunter für Zinsen, etc.)	Ausgabe für zahlbare Sterbefälle M.	Geschäfts-fonds excl. Aktien-kapital M.	Aktienkapital	
				Nominell M.	Bareinge-zahlt M.
1880.....	93,827,070 (19,197,887)	30,700,321	413,261,116	149,148,961	60,285,660
1881.....	100,018,589 (20,547,784)	32,855,058	449,576,536	149,045,611	60,321,360
1882.....	104,365,052 (21,117,332)	33,422,270	487,167,762	149,897,348	60,474,185
1883.....	112,174,223 (23,431,397)	35,913,074	530,282,953	154,140,973	61,320,735
1884.....	121,694,285 (25,274,278)	37,300,765	575,475,007	154,161,186	61,321,185
1885.....	130,952,655 (27,185,456)	40,082,153	629,986,259	154,155,186	61,317,885
1886.....	141,049,160 (29,205,271)	42,556,938	687,516,416	154,149,186	61,314,585
1887.....	150,359,878 (31,036,322)	44,359,930	751,086,379	154,032,786	61,253,760
1888.....	159,889,232 (33,967,003)	47,610,260	813,429,394	153,787,611	61,069,185
1889.....	173,198,456 (36,133,223)	49,523,789	892,642,272	154,381,611	61,230,585
1890.....	182,891,988 (38,493,834)	51,916,965	962,319,189	154,375,611	61,227,585
1891.....	196,647,104 (41,633,539)	55,582,742	1,046,213,345	158,200,786	61,948,960
1892.....	210,795,234 (45,127,053)	59,237,196	1,125,017,825	158,134,786	61,933,660
1893.....	228,928,507 (49,047,739)	63,049,067	1,223,088,653	166,284,786	67,718,760
1894.....	251,396,110 (54,070,685)	60,306,304	1,354,738,178	166,840,786	67,859,260
1895.....	264,016,293 (57,915,055)	65,474,102	1,455,822,741	167,367,289	68,211,713
1896.....	282,673,826 (61,964,980)	68,267,053	1,586,592,927	177,059,356	70,646,754
1897.....	338,418,685 (71,974,044)	70,543,363	1,879,213,384	177,051,448	70,769,965
1898.....	365,001,580 (77,709,107)	74,031,168	2,055,128,488	188,677,409	78,472,088
1899.....	388,632,136 (85,557,526)	80,999,147	2,215,109,985	190,808,494	79,196,023
1900.....	412,954,463 (92,493,570)	86,882,118	2,386,933,916	196,737,687	80,568,516
1901.....	440,470,011 (101,419,976)	91,285,023	2,576,874,528	205,629,916	82,781,515

ABSTRACT.

ON THE DEVELOPMENT OF LIFE INSURANCE IN GERMANY.

By Dr. Lindemann.

To understand the following remarks, a correct idea of the nature of the German life insurance business is necessary. A detailed account of life insurance in Germany would show to what extent, in comparison with other nations, the Germans have taken part in life insurance, but insufficient statistical data will not permit of carrying out this task. We can only show what German life insurance companies can do and have already accomplished.

The main branch of insurance is the regular life insurance in its various forms, that is, insurance for the whole of life and term insurance. In this article only those German companies are considered which apply themselves to this main branch of insurance, but not co-operative institutions for the payment of death benefits, or institutions dealing merely with endowment insurance or the payment of annuities.

Table I. contains the insurance sums, estimated in decades.

Table II. deals with the development of minor branches of the life insurance business.

Table III. deals with the financial results in various directions.

Table IV. shows the number of life insurance companies.

The figures here recorded are not overwhelming, especially when they are compared with the totals from some foreign countries. But along with the steady growth and development there has been great stability of current business. The abnormal loss through re-purchase and cancellation of policies amounts to only slightly more than 2 per cent. (in 1901 2.22 per cent.) of the capital on hand, and even the smaller institutions, which naturally sustain greater losses, show a relatively moderate number of cancellations. No matter what method of comparison is employed, the sum required for defraying the cost of management and other expenses is very small, and to all this the German life insurance business owes its reputation for soundness and reliability.

RÉSUMÉ.

LE DÉVELOPPEMENT D'ASSURANCE SUR LA VIE EN ALLEMAGNE.

Par Dr. A. Lindemann.

Il est nécessaire pour l'intelligence des remarques suivantes de concevoir la nature sommaire de l'Assurance sur la vie allemande. Le traité détaillé de l'Assurance sur la vie allemande montrerait bien la part prise par les Allemands, —auprès de celle des autres nations,—à l'Assurance sur la vie. Mais on ne peut qu'avancer mal ce thème-là à cause du manque des bases nécessaires. Nous ne pouvons que montrer ce qui a été réalisé par l'Assurance sur la vie allemande à l'heure actuelle et ce qu'elle réalisera.

Le gros des affaires est constitué par l'assurance sur la vie régulière, c'est à dire par les espèces différentes d'assurance à vie et à temps. Les compagnies allemandes qui prennent soin de cette branche principale ont seules été prises en considération, mais point les Caisses Mortuaires ou les Institutions pour douer ou pour payer les Rentes viagères.

Table I donne les sommes assurées par décade.

Table II traite des affaires accessoires de l'assurance sur la vie.

Table III fait le rapport des résultats financiers à tout point de vue.

Table IV donne le nombre des Compagnies d'Assurance sur la vie.

Il n'y a pas de nombres étonnants en les comparant aux totaux de quelques états non-Allemands. Mais outre la persévérance du développement,—c'est principalement la stabilité des affaires courantes qu'il faut considérer: la perte anormale par rachat et par renoncement n'excède qu'un peu plus de deux pour cent (2,22% en 1901) les assurances valides de l'année du rapport; et même la plus petite assurance, naturellement sujette à la perte la plus considérable, n'indique que des nombres modérés relativement. N'oublions pas l'insignifiance des dépenses et des frais d'administration,—de quelque part qu'elle vienne. Voilà le fondement de la réputation et de la solidité de l'Assurance sur la vie allemande.

DIE ENTWICKELUNG DER DEUTSCHEN ARBEITER-VERSICHERUNG.

Von Dr. Hugo Meyer,

Mathematiker beim Reichs-Versicherungsamt (Berlin),
Mitglied des Deutschen Vereins für Versicherungs-Wissenschaft.

Inhalt: 1) Seit der Berichterstattung an den Londoner Kongress sind die deutschen Arbeiterversicherungsgesetze teilweise geändert worden, daher erscheint ein neuer Bericht mit einigem statistischen Material angezeigt. 2) Die Versicherung ist inzwischen hauptsächlich nur insofern ausgedehnt worden, dass der Kreis der versicherungspflichtigen und der versicherungsberechtigten Personen erweitert worden ist, weniger insofern, dass neue Versicherungszweige eingeführt wären; auch jetzt kommen im wesentlichen nur die Krankenversicherung, die Unfallversicherung und die Invalidenversicherung in Frage (vergl. Ziffer 13); die allgemeine Hinterbliebenenversicherung soll demnächst eingeleitet werden. Eine Vereinigung der verschiedenen Versicherungszweige hat sich nicht erreichen lassen.

Die Krankenversicherung: 3) Für die Krankenversicherung sorgen jetzt mehr als 23,000 Krankenkassen. 4) Sie haben mindestens für die ersten 13 (demnächst 26) Wochen der Krankheit die Kosten der Heilbehandlung zu tragen und, wenn die Krankheit mit Erwerbsunfähigkeit verbunden ist, ein Krankengeld (mindestens 50% des Lohnes) zu zahlen; ausserdem müssen die organisierten Zwangskassen ein Sterbegeld und eine Wöchnerinnenunterstützung für 4 (demnächst 6) Wochen gewähren. 5) Mehrleistungen sind zulässig und vielfach üblich. 6) Zahl der Erkrankungsfälle und der Krankheitstage. 7) Die Kosten werden durch Beiträge aufgebracht, die bei der Zwangsversicherung zu $\frac{1}{3}$ den Arbeitgebern, zu $\frac{2}{3}$ den Arbeitnehmern zur Last fallen; für die Höhe der Beiträge sind bei der Zwangsversicherung feste obere Grenzen vorgeschrieben. 8) Der Reservefonds wird nach der durchschnittlichen Jahresausgabe bemessen. Garantieen. 9) Geschäfts- und Rechnungsergebnisse der Krankenversicherung.

Die Unfallversicherung: 10) Zur Durchführung der Unfallversicherung sind 66 gewerbliche und 48 landwirtschaftliche Berufsgenossenschaften gebildet; zu den gewerblichen Berufsgenossenschaften gehören ausserdem 14 Versicherungsanstalten; für die Unfallversicherung der in staatlichen, provinzialen und kommunalen Betrieben beschäftigten Personen sorgt eine grosse Zahl von Ausführungsbehörden. 11) Die Leistungen der Unfallversicherung setzen mit dem Beginn der 14. Woche nach dem Unfall ein, und bestehen, bei Körperverletzungen, in freier Heilbehandlung und einer nach dem Masse der Erwerbsunfähigkeit in Prozenten des Jahresarbeitsverdienstes bemessenen Rente für die Dauer der Erwerbsunfähigkeit; im Falle des Todes eines Versicherten in einem Sterbegeld und in Renten an die Hinterbliebenen. Kleine Renten können durch Kapitalzahlung abgelöst werden. Ausländer können mit dem dreifachen Jahresbetrage der Rente abgefunden werden. 12) Alle Entschädigungen werden unentgeltlich durch die Post gezahlt. 13) Gewisse Mehrleistungen sind zulässig; auch kann auf Unfallverhütung hingewirkt werden. Infolgedessen haben die schweren Unfälle verhältnismässig abgenommen. Die Berufsgenossenschaften haben jetzt auch die

Berechtigung erhalten, die Unternehmer gegen Haftpflicht zu versichern und Zuschuss- und Pensionskassen, aber ohne Beitrittszwang, für die zu ihnen gehörigen Personen zu gründen. 14) Angaben über die Unfallhäufigkeit. 15) Die Kosten der Unfallversicherung fallen den Unternehmern allein zu. 16) Der Jahresbedarf an Mitteln und die in den Reservefonds einzulegenden Beträge werden umgelegt. Bemessung der Zuschläge für den Reservefonds. 17) Garantieen. 18) Das Umlageverfahren ist bei der Tiefbau-Berufsgenossenschaft und bei den Versicherungsanstalten verlassen. 19) Der Kapitalwert der Verletzten-Renten in seiner Abhängigkeit vom Alter des Rentenberechtigten und der Dauer des Rentenbezuges. 20) Die Prämien für die Versicherungsanstalten. 21) Die Geschäfts- und Rechnungsergebnisse der Unfallversicherung.

Die Invalidenversicherung: 22) Die Invalidenversicherung besorgen 31 territorial abgegrenzte Versicherungsanstalten und 9 Eisenbahn- oder Knappschaftskassen. Die Versicherungspflichtigen nach Geschlecht und Alter; die fünf Lohnklassen. 23) Die Leistungen der Invalidenversicherung haben die Entrichtung von Beiträgen zur Voraussetzung. Invalidenrente erhält nach Ablauf einer Wartezeit von 200 Beitragswochen (bei freiwilliger Versicherung: von 500 Wochen) derjenige Versicherte, dessen Erwerbsfähigkeit auf $\frac{1}{3}$ gesunken ist, oder der während 26 Wochen ununterbrochen krank gewesen ist, für die fernere Dauer der Erwerbsunfähigkeit. Altersrente erhält nach Ablauf einer Wartezeit von 1200 Beitragswochen derjenige Versicherte, der das 70. Lebensjahr vollendet hat. Berechnung der Höhe der Renten. Ausländer können mit dem dreifachen Jahresbetrage ihrer Rente abgefunden werden. Weiblichen Personen, die eine Ehe eingehen, und Versicherten, die infolge eines Betriebsunfalles dauernd erwerbsunfähig werden, steht ein Anspruch auf Erstattung der Hälfte der für sie entrichteten Beiträge zu; ebenso haben die Witwe oder die Vollwaisen eines Versicherten Anspruch auf Erstattung der Hälfte der für den Verstorbenen entrichteten Beiträge; Voraussetzung ist, dass auf Grund der fraglichen Beiträge noch keine Rente bewilligt ist. Mit der Erstattung der Beiträge erlöschen alle Anwartschaften. 24) Alle Renten und Erstattungen werden unentgeltlich durch die Post gezahlt. Betriebsfonds der Post. Verrechnung mit den Versicherungsträgern. 25) Die Anstalten können bei Versicherten und Rentenberechtigten ein Heilverfahren veranlassen, auch Rentenberechtigte in Invalidenhäusern verpflegen. Andere Nebenleistungen. 26) Die Mittel für die Invalidenversicherung werden vom Reich, von den Arbeitgebern und den Versicherten aufgebracht. Für das Reich werden bei jeder Rente 50 Mark angerechnet, die Beiträge fallen je zur Hälfte den Arbeitgebern und den Arbeitnehmern zur Last. 27) Die Beiträge sollten nach dem alten Gesetze neben den übrigen Ausgaben den Kapitalwert der in jeder Periode entstehenden Rentenanteile der Versicherungsanstalten decken, sie sollen jetzt auch zur Deckung des Wertes aller entstehenden Anwartschaften, soweit sie den Versicherungsanstalten zufallen, ausreichen, man ist also zum Prämienverfahren im gewöhnlichen Sinne übergegangen. Die Höhe der Wochenbeiträge ist dabei dieselbe geblieben, nur der Beitrag für die Lohnklasse V ist hinzugekommen, und der Reservefonds ist fortgefallen. 28) Versicherungstechnische Untersuchungen zur Invalidenversicherung; der Kapitalwert der Invalidenrenten in seiner Abhängigkeit vom Alter des Rentenempfängers und der Dauer des Rentenbezuges. 29) Garantieen. 30) Geschäfts- und Rechnungsergebnisse der Invalidenversicherung. 31) Rückblick auf die Leistungen der gesamten Arbeiterversicherung.

1. Über die deutsche Arbeiterversicherung hat *Unger* bereits dem Londoner Kongress berichtet und den damaligen Stand bis ins Einzelne geschildert. Seitdem ist das Invaliditäts- und Altersversicherungsgesetz durch das Invalidenversicherungsgesetz vom 13. Juli 1899 ersetzt, und die Unfallversicherungsgesetze sind im Jahre 1900 einer Revision unterzogen worden. Die Krankenversicherung hat ebenfalls im Jahre 1900 eine Erweiterung erfahren, andere Änderungen unterliegen augenblicklich der Beratung des Reichstages. Ich komme daher der Aufforderung, einen der jetzigen Sachlage entsprechenden Bericht zu erstatten, gerne nach, glaube mich aber bei der gebotenen Kürze auf diejenigen Punkte von grösserer Bedeutung beschränken zu sollen, die für den Versicherungstechniker in erster Linie von Interesse sind. Auf die Organisation und die Verwaltung denke ich nur soweit einzugehen, als das zum Verständnis des Ganzen unvermeidlich ist, im übrigen kann ich umso eher davon absehen, als die Ausführungen des Herrn *Unger* hierüber in allem wesentlichen noch heute zutreffend sind. Aus demselben Grunde erübrigt sich heute auch eine genauere Beschreibung des Versichertenstocks. Die statistischen Ergebnisse habe ich etwas ausführlicher behandelt, weil sie manchem vielleicht auch als Ergänzung des Londoner Berichts willkommen sein mögen. — Zu genauerer Informierung sei verwiesen auf *Lass* und *Zahn:* „Einrichtung und Wirkung der deutschen Arbeiterversicherung," 2. Ausgabe, Berlin 1902.

2. Die reichsgesetzliche Arbeiterversicherung beruht auf Gegenseitigkeit, und sie ist von Anfang an auf den Versicherungszwang gegründet; gewisse Personengruppen sind kraft Gesetzes versichert, gewisse andere oder auch dieselben Personengruppen sind zur vollständigen oder teilweisen Aufbringung der erforderlichen Mittel durch Beiträge (Prämien) verpflichtet. Daneben ist innerhalb bestimmter Grenzen eine freiwillige Teilnahme an der Versicherung zugelassen. Die Verwaltung geschieht nicht von Reichs- oder Staatswegen, sondern ist im allgemeinen Selbstverwaltung.

Die Versicherung bezieht sich auf im Deutschen Reiche unselbständig beschäftigte Arbeiter beiderlei Geschlechts und jeder Nationalität, deren Jahresarbeitsverdienst 2000 Mark nicht überschreitet, ohne dass diese Grenzen unbedingt und überall streng innegehalten würden. So sind namentlich in die Unfallversicherung etwa $4\frac{1}{2}$ Millionen kleine landwirtschaftliche Unternehmer einbezogen. Die Kreise der in den verschiedenen Versicherungszweigen versicherten Personen decken sich nur teilweise, sie sind allmälig erweitert worden, und zwar in den letzten Jahren besonders nach zwei Richtungen hin: einmal ist der Versicherungszwang auf Personen ausgedehnt worden, die nur in gewissem Sinne unselbständig beschäftigt sind, z. B. Hausgewerbetreibende und Heimarbeiter, besser gestellte Betriebsbeamte, gewisse Lehrer und dergl., oder die keine Lohnarbeiter im eigentlichen Sinne sind, wie z. B. Kleinmeister und im Betriebe beschäftigte Familienangehörige; sodann ist die Berechtigung zu freiwilliger Teilnahme an der reichsgesetzlichen Versicherung erweitert worden; die Befürchtung, es könnte auf diesem Wege der privaten Versicherung erhebliche Konkurrenz entstehen, hat sich bisher als unbegründet erwiesen, es wird die freiwillige Versicherung nur sehr wenig benützt. Die eigentliche Arbeiterversicherung erstreckt sich auch heute nur auf die Krankenversicherung, die Unfallversicherung und die Invalidenversicherung. Die Berufsgenossenschaften sind indessen jetzt berechtigt, die Unternehmer gegen Haftpflicht zu versichern und gewisse Zuschuss- und Pensionskassen einzurichten (vergl. Ziffer 13). Eine dauernde Fürsorge für die Hinterbliebenen verstorbenen

Arbeiter besteht nur erst für den Fall, dass der Tod die Folge eines Betriebsunfalls war, sie kann nach der jetzigen Rechtslage von der Seeberufsgenossenschaft jedoch auch für diejenigen ihrer Mitglieder eingeführt werden, die nach dem Invalidenversicherungsgesetz versichert sind. Eine allgemeine Witwen- und Waisenversicherung soll demnächst angebahnt werden.

Ganz allgemein hat die Unfallversicherung einzutreten, wenn die Verletzung oder der Tod eines Versicherten die Folge eines Unfalles im Betriebe ist, die Krankenversicherung bei Krankheit und bei Erwerbsunfähigkeit von kurzer Dauer, und endlich die Invalidenversicherung bei längerer, besonders bei dauernder Erwerbsunfähigkeit infolge von Krankheit und bei Vollendung des 70. Lebensjahres. Diese Versicherungszweige greifen vielfach durcheinander, doch sind gleichzeitige Leistungen von verschiedenen Zweigen an dieselbe Person ausgeschlossen. Bei Gelegenheit der Gesetzesrevisionen der letzten Jahre ist vielfach über eine Zusammenfassung der verschiedenen Versicherungszweige verhandelt worden, aber ohne nennenswerten Erfolg. In der Tat wird eine Vereinigung der Zweige jetzt, nachdem sie sich selbständig entwickelt haben, schwer zu erreichen sein, einmal weil die verschiedenen Versicherungen verschieden weite Personenkreise umfassen, besonders aber weil die Organisation, die für die eine Versicherungsart zweckmässig ist, sich für die andere als unzweckmässig erweist. Man darf deshalb die deutsche Arbeiterversicherung nicht schmähen. Allen anderen Staaten voran hat das Deutsche Reich mit seiner Arbeiterversicherung ein Gebiet betreten, auf dem noch jede Erfahrung fehlte; wenn da nicht sogleich ein Weg gefunden oder eingeschlagen wurde, der für alle Versicherungen bequem zum Ziele geführt hätte, so ist das nur menschlich. Mögen andere Staaten sich in stets weiterem Umfange die Erfahrungen des Deutschen Reiches zu Nutzen machen.

Die Krankenversicherung.

3. Der Krankenversicherung dienen die *Innungs-Krankenkassen* für die Gesellen und Lehrlinge der Innungsmitglieder; die aus freien Vereinigungen der Arbeiter hervorgegangenen *Hülfskassen* ohne Beitrittszwang (Eingeschriebene Hülfskassen und Landesrechtliche Hülfskassen); die *Betriebs-* (*Fabrik-*) *Krankenkassen,* welche für die Arbeiter eines grossen Unternehmens von dem Unternehmer, die *Bau-Krankenkassen* für grössere Bauausführungen, welche von dem Bauherrn zu errichten sind, und endlich die *Orts-Krankenkassen,* d. s. korporative Verbände von Berufsgenossen, welche in der Regel für die in einem Gewerbszweige oder einer Betriebsart beschäftigten Personen eines Ortes von der Gemeinde errichtet werden. Daneben bestehen die *Gemeinde-Krankenversicherungen* als kommunale Einrichtungen, die für alle Gemeinden obligatorisch gemacht sind, um denjenigen Versicherungspflichtigen, die in keiner der erwähnten organisierten Krankenkassen Aufnahme gefunden haben, doch den Schutz und den Nutzen der Versicherung zu gewähren. Die auf berggesetzlichen Vorschriften der Bundesstaaten beruhenden *Knappschaftskassen* sind durch die reichsgesetzliche Krankenversicherung nur insoweit berührt worden, als sie die Vorschrift erfüllen müssen, mindestens soviel zu leisten wie die Betriebs-Krankenkassen.

Die Zahl der reichsgesetzlichen Krankenkassen (also alle Kassen mit alleiniger Ausnahme der Knappschaftskassen, über die zum Teil nur eine mangelhafte Statistik vorliegt) betrug im Jahre 1885 insgesamt 18,942, sie ist allmälig auf 22,872 im Jahre 1899 gestiegen. In diesem Jahre waren — sehr nahe wie in den früheren Jahren — von 1000

Kassen 373 Gemeinde-Krankenversicherungen (besonders zahlreich in Süddeutschland), 202 Orts-Krankenkassen, 321 Betriebs- (Fabrik-) Krankenkassen, 4 Bau-Krankenkassen, 27 Innungs-Krankenkassen, 63 Eingeschriebene und 10 Landesrechtliche Hülfskassen. In demselben Jahre betrug die durchschnittliche Zahl der Kassenmitglieder bei den Gemeinde-Krankenversicherungen 175, bei den Ortskrankenkassen 930, bei den Betriebs-Krankenkassen 332, bei den Bau-Krankenkassen 253, bei den Innungs-Krankenkassen 283, bei den Eingeschriebenen Hülfskassen 560 und endlich bei den Landesrechtlichen Hülfskassen 191.

4. Hinsichtlich ihrer Leistungen bestehen zwischen den verschiedenen Kassen recht bedeutende Unterschiede, aber es sind alle zu folgenden Mindestleistungen gesetzlich verpflichtet:

1) ist zu gewähren freie ärztliche Behandlung, freie Arznei und kleine Heilmittel (Brillen, Bruchbänder u. dergl.) vom Tage der Erkrankung ab und

2) falls die Erkrankung mit Erwerbsunfähigkeit verbunden ist, vom dritten Tage der Erkrankung ab für jeden Arbeitstag ein Krankengeld in Höhe von mindestens 50% des für den Versicherten massgebenden Tagelohnes.

Diese Leistungen müssen während der Dauer der Krankheit bis zu 13 Wochen seit Beginn der Krankheit oder des Krankengeldbezuges gewährt werden. Die augenblicklich dem Reichstage vorliegende Gesetzesnovelle beabsichtigt die Grenze der Unterstützungsdauer auf 26 Wochen hinauszurücken, um bei noch längerer Krankheitsdauer einen unmittelbaren Anschluss an die nach dem Invalidengesetz zu gewährende Krankenrente (s. Ziffer 23) zu gewinnen.

Ausserdem haben die organisierten Zwangskassen (Orts-, Betriebs-, Bau-, Innungs-Krankenkassen) beim Tode eines Mitgliedes ein Sterbegeld im 20fachen Betrage des Tagelohnes zu zahlen und eine Wöchnerinnen-Unterstützung in Höhe des Krankengeldes für mindestens 4 Wochen (nach der Novelle 6 Wochen) nach der Niederkunft zu leisten.

An die Stelle der oben unter 1) und 2) aufgeführten Leistungen kann auch freie Kur und Verpflegung in einem Krankenhause eingeführt werden. Das Krankengeld wird nach Ablauf jeder Woche gezahlt.

5. Die Kassen sind berechtigt, über diese Mindestleistungen hinauszugehen. Die Geldleistungen können erhöht werden, und die Dauer der Unterstützung kann verlängert werden und zwar sowohl in der Weise, dass das Krankengeld sofort vom Beginn der Krankheit ab und auch für Sonn- und Festtage gezahlt wird, wie auch derart, dass an die Stelle der 13 Wochen eine längere Zeit gesetzt wird. Ferner kann freie ärztliche Behandlung und Arznei auch den nicht versicherten Angehörigen der Kassenmitglieder gewährt werden, die Wöchnerinnenunterstützung darf bis zu 6 Wochen geleistet werden, und ein, wenn auch geringes, Sterbegeld darf beim Tod von Angehörigen von Versicherten gewährt werden. — Gewisse Beschränkungen der Kassenleistungen gegenüber solchen Personen, die nicht versicherungspflichtig, der Versicherung aber freiwillig beigetreten sind, gegenüber Versicherten, die die Kasse durch gewisse strafbare Handlungen geschädigt haben, gegenüber Kranken, die sich eine Krankheit vorsätzlich oder durch schuldhafte Beteiligung bei Schlägereien, durch Trunkfälligkeit oder durch geschlechtliche Ausschweifungen zugezogen haben, sind von geringerer Bedeutung, sie sollen zum Teil durch die dem Reichstag vorliegende Novelle zum Gesetze beseitigt werden.

In welchem Umfange die Krankenkassen (mit Ausschluss der

Knappschaftskassen) von der Befugnis zu solchen Mehrleistungen Gebrauch gemacht haben, mag durch folgende die wichtigsten Mehrleistungen betreffende Übersicht erläutert werden:

RECHNUNGS-JAHR	Von 1000 Krankenkassen							
	Gewährten als Krankengeld % des Lohnes				Gewährten die statutenmässige Krankenunterstützung bis zu Wochen			
	50	Über 50 bis einschl. 66⅔	Über 66⅔ bis einschl. 75	Über 75	13	Über 13 bis 26	Über 26 bis 52	Über 52
1888	946	39	14	1	791	132	68	9
1889	941	41	17	1	799	132	63	6
1890	931	47	21	1	798	134	63	5
1891	925	52	23	..	797	134	65	4
1892	922	53	24	1	803	132	62	3
1893	920	57	23	..	817	137	45	1
1894	920	58	22	..	818	137	44	1
1895	919	59	22	..	818	137	44	1
1896	918	61	21	..	820	137	42	1
1897	912	65	23	..	815	141	43	1
1898	907	70	23	..	807	149	43	1
1899	901	75	24	..	802	153	44	1

Für das Jahr 1897 kann eine solche Abstufung auch für sämtliche Kassen mit Einschluss der Knappschaftskassen und, was wertvoller ist, auch für sämtliche Versicherte gegeben werden. Es gewährten von 1000 Krankenkassen eine Unterstützungsdauer, oder es haben von 1000 Versicherten im Krankheitsfalle Anspruch auf eine solche von

	13	14 bis 25	26	27 bis 39	39 bis 51	52 Wochen
Krankenkassen	814	30	112	7	36	1
Versicherte	579	69	199	46	106	1

Man sieht daraus, wie wünschenswert die Verlängerung der pflichtmässigen Unterstützung bis zum Ablauf von 26 Wochen ist.

Es zahlten von 1000 Krankenkassen ein Krankengeld, oder es hatten von 1000 Versicherten im Erkrankungsfalle einen Anspruch auf ein solches in Höhe von

	50%	51-66⅔% des Lohnes	66⅔-75%	Anderweit festgesetzt
Krankenkassen	912	66	22	—
Versicherte	774	116	21	89

6. Über die durchschnittliche Zahl der Erkrankungsfälle und der Krankheitstage und die durchschnittliche Dauer der Unterstützung mit Krankengeld giebt die angehängte Tabelle A Aufschluss. Dazu ist aber zu bemerken, dass als „Erkrankungsfälle“ und „Krankheitstage“ nur diejenigen der Mitglieder (nicht auch ihrer Angehörigen) gezählt sind, und nur solche, für welche Krankengeld, Verpflegungskosten an Krankenanstalten oder Ersatzleistungen an Dritte für gewährte Krankenunterstützung gezahlt sind. Erkrankungsfälle, in denen keine Erwerbsunfähigkeit eingetreten ist, und Krankheitstage, welche innerhalb der statutgemässen Karenzzeit liegen, sind unberücksichtigt geblieben. In den Jahren 1885 bis 1899 sind insgesamt für 613,469,871 Krankheitstage Entschädigungen geleistet, davon kamen 445‰ auf die Orts-, 284‰ auf die Betriebskrankenkassen, 124‰ auf die Eingeschriebenen Hülfskassen, 114‰ auf die Gemeindeversicherungen, 17‰ auf die Landesrechtlichen Hülfskassen, 11‰ auf die Innungs- und endlich 5‰ auf die Bau-Krankenkassen.

7. Die für die Krankenversicherung erforderlichen Mittel werden durch regelmässige Beiträge und durch Eintrittsgelder aufgebracht. Die Beiträge entfallen für versicherungspflichtige Personen zu $^2/_3$ auf diese, zu $^1/_3$ auf die Arbeitgeber; freiwillig versicherte, nicht versicherungspflichtige Personen und die Mitglieder der Hülfskassen zahlen selbst die vollen Beiträge. Eintrittsgelder belasten nur die Versicherten. Die Kosten der Verwaltung tragen indessen bei den Gemeinde-Krankenversicherungen die Gemeinden, bei den Betriebs- und Bau-Krankenkassen die Unternehmer, und nur die übrigen Kassen haben ihre Verwaltungskosten selbst aufzubringen.

Die Höhe der Beiträge ist natürlich, wie die Kassenleistungen, sehr verschieden; sie wird durch das Kassenstatut festgesetzt, doch hat das Gesetz bei der Zwangsversicherung obere Grenzen gezogen, damit die Versicherten nicht zu stark belastet werden. Bei der Gemeinde-Krankenversicherung sollen die Beiträge $1\frac{1}{2}$ und bei ungünstiger Entwickelung 2% des ortsüblichen Tagelohnes nicht übersteigen. Dieser Satz ist in der Begründung zu dem Gesetzentwurf nach den Erfahrungen der Leipziger Krankenkasse „Gegenseitigkeit" und der preussischen Knappschaftsvereine ermittelt worden. Bei den anderen organisierten Zwangskassen sollen sie, soweit sie den Kassenmitgliedern selbst zur Last fallen, 2 bis 3 (die gesamten Beiträge also 3 bis $4\frac{1}{2}$) Prozent des massgebenden Lohnes nicht überschreiten. Wie sich die Beiträge tatsächlich bei den reichsgesetzlichen Kassen gestellt haben, darüber wird folgende Übersicht einige Auskunft geben:

Rechnungsjahr	Bis $1\frac{1}{2}$	Über $1\frac{1}{2}$ bis 2	Über 2 bis 3	Über 3 bis 4	Rechnungsjahr	Bis $1\frac{1}{2}$	Über $1\frac{1}{2}$ bis 2	Über 2 bis 3	Über 3 bis 4
1885 ...	537	202	253	8	1893...	434	223	313	30
1886 ...	502	180	298	20	1894...	412	227	323	38
1887 ...	500	185	293	22	1895...	406	226	328	40
1888 ...	499	198	285	18	1896...	393	237	328	42
1889 ...	488	209	285	18	1897...	382	246	330	42
1890 ...	480	211	291	18	1898...	373	250	334	43
1891 ...	471	216	294	19	1899...	365	253	339	43
1892 ...	458	222	297	23					

Auch hier können für das Jahr 1897 wieder etwas genauere Angaben gemacht werden. Es stellte sich in diesem Jahre unter 1000 Kassen (reichsgesetzlichen und Knappschaftskassen) oder unter 1000 Versicherten der Beitrag auf Prozent des Lohnes:

	$1\frac{1}{2}$ oder weniger	$1\frac{1}{2}$-2	2-$2\frac{1}{2}$	$2\frac{1}{2}$-3	3-$3\frac{1}{2}$	$3\frac{1}{2}$-4	anderweite Festsetzung
bei Kassen.....	379	245	131	198	18	24	5
bei Versicherten	82	209	194	305	50	44	116

Wie bereits erwähnt, besteht die Absicht, die Unterstützungsdauer in Krankheitsfällen auf 26 Wochen, und die Wöchnerinnenunterstützung auf 6 Wochen auszudehnen; um die dadurch bedingte Mehrbelastung auszugleichen, sollen die Grenzen der Beiträge von 2 auf 3 und von 3 auf 4% des Lohnes gerückt werden.

8. Aus den Überschüssen ist ein Reservefonds anzusammeln, der mindestens der durchschnittlichen Jahresausgabe der letzten 3 Jahre gleichkommen soll. Eine Prämienreserve wird also nicht berechnet.

Werden die gesetzlichen Mindestleistungen einer Betriebs-, Bau- oder Innungskrankenkasse durch die Beiträge, nachdem diese für die Versicherten 3% der durchschnittlichen Tagelöhne oder des Arbeitsverdienstes (für die Arbeitgeber also 1½%) erreicht haben, nicht gedeckt, so hat der Betriebsunternehmer, Bauherr oder die Innung die zur Deckung des Aufwandes erforderlichen Zuschüsse (ohne Erstattungsanspruch) aus eigenen Mitteln zu leisten. Diese Zuschüsse haben in der Zeit von 1885 bis 1899 insgesamt 558,626 Mark betragen. Bei Ortskrankenkassen tritt bei Unzulänglichkeit der Beiträge die Schliessung der Kasse ein. Aus der Gemeindekasse sind, wenn die Bestände der Krankenversicherungskasse nicht ausreichen, um ihre fällig werdenden Ausgaben zu decken, die erforderlichen Vorschüsse zu leisten, welche später zu erstatten sind. Der noch nicht zurückgezahlte Vorschuss der Gemeindekassen betrug Ende 1899 6,737,325 Mark.

9. Sämtliche reichsgesetzlichen Krankenkassen haben über ihre Geschäfts- und Rechnungsergebnisse nach vorgeschriebenen Mustern Aufstellungen zu machen, welche im Kaiserlichen Statistischen Amte zu jährlichen Veröffentlichungen verarbeitet werden („Statistik des Deutschen Reichs," Neue Folge, Bd. 24, 31, 38, 46, 53, 59, 65, 72, 78, 84, 90, 96, 121, 127 und 133). So wertvoll diese Veröffentlichungen auch sind, so haben sie doch für den Versicherungstechniker einen grossen Mangel; es fehlt ihnen nämlich jede Beziehung zum Alter der Versicherten. Daran vermag das genannte Amt allerdings nichts zu ändern; es enthalten die ihm zugehenden Aufstellungen keine Altersangaben, und die Form dieser Aufstellungen wird nicht von dem Amte, sondern von den höheren Verwaltungsbehörden der Bundesstaaten vorgeschrieben.

Die im Vorstehenden gegebenen Zahlen haben den Veröffentlichungen des Kaiserlichen Statistischen Amtes zumeist, und die in Tabelle A mitgeteilten vollständig entnommen werden können. Aus Tabelle A ergiebt sich u. a., dass bei den reichsgesetzlichen Krankenkassen in den Jahren 1885 bis einschliesslich 1899 in runden Zahlen die Versicherten 1094 und die Arbeitgeber 434 Millionen Mark an Beiträgen bar entrichtet haben. Dagegen sind den Versicherten und ihren Angehörigen an Krankheitskosten (Ausgaben für Arzt, Arznei und Heilmittel, sonstige Kur- und Verpflegungskosten im Hause und in Anstalten, Kosten der Fürsorge für Rekonvaleszenten, Krankengeld, Wöchnerinnenunterstützungen, Sterbegelder) 1366 Millionen Mark wieder zugeflossen, also 272 Millionen Mark mehr als sie aufgebracht haben. Für Verwaltung sind 96 Millionen Mark ausgegeben worden; das sind aber nur die den Kassen selbst zur Last fallenden Kosten, die Aufwendungen der Gemeinden für die Verwaltung der Gemeinde-Krankenversicherung und der Arbeitgeber für die Verwaltung der Betriebs- und Bau-Krankenkassen sind nicht bekannt. Es dürfen daher jene 96 Millionen nicht etwa mit den gesamten Einnahmen aus Beiträgen oder mit den gesamten Ausgaben in Verhältnis gestellt werden. — Der Reservefonds belief sich Ende 1899 auf 138 Millionen, und das gesamte Vermögen betrug bei den reichsgesetzlichen Krankenkassen 152 Millionen Mark.

Nach einer zum Teil auf massvoller Schätzung beruhenden Statistik sind für die gesamte Krankenversicherung (einschliesslich Knappschaftskassen) in den Jahren 1885-1900 in runden Zahlen von den Arbeitnehmern 1306 und von den Arbeitgebern 558 Millionen Mark an Beiträgen gezahlt worden, und es sind den Versicherten und ihren Angehörigen 1683 Millionen Mark wieder zugeflossen. Die Verwaltungskosten sind mit 105 Millionen Mark anzusetzen; das gesamte Vermögen betrug am Ende dieser Periode 172 Millionen Mark.

Die Unfallversicherung.

10. Die Unfallversicherung der Arbeiter wird bewirkt durch *Berufsgenossenschaften* und durch Reichs-, Staats-, Provinzial- und Kommunal-*Ausführungsbehörden*. — Die Berufsgenossenschaften sind nach Gewerbszweigen für begrenzte Bezirke oder für das ganze Reich gebildet. Bei einer jeden Berufsgenossenschaft sind kraft Gesetzes alle Betriebe der zugehörigen Gewerbszweige versichert, deren Sitz sich innerhalb des Bezirks der Berufsgenossenschaft befindet. Zur leichteren Durchführung der Unfallversicherung bei Regie- oder Eigenbaubetrieben und bei dem Kleinbetrieb der Seeschiffahrt und der gesammten Seefischerei sind den Baugewerks-Berufsgenossenschaften, der Tiefbau- und der See-Berufsgenossenschaft sogenannte *Versicherungsanstalten* angegliedert, die jedoch nur eine beschränkte Selbständigkeit haben, im besonderen wird ihr Risiko von der zugehörigen Berufsgenossenschaft getragen. — Die Ausführungsbehörden handhaben die Unfallversicherung für die versicherungspflichtigen Betriebe des Reichs, Staats u. s. w.

Es bestanden im Jahre 1901 65 gewerbliche und 48 landwirtschaftliche Berufsgenossenschaften, die Zahl der Versicherungsanstalten der Baugewerks-Berufsgenossenschaften betrug 13; die gewerblichen Berufsgenossenschaften hatten nahezu 7 Millionen Versicherte, die landwirtschaftlichen ungefähr 11 Millionen, dennoch spielt die Unfallversicherung für das Gewerbe eine viel grössere Rolle als für die Landwirtschaft, denn die Unfallgefahr ist dort viel grösser als hier. Die Zahl der Ausführungsbehörden ist zwar sehr viel grösser als die der Berufsgenossenschaften, es sind bei ihnen aber nur verhältnismässig wenig Arbeiter versichert. — Neu hinzugekommen ist infolge der Erweiterung der Unfallversicherung vom Jahre 1900 eine gewerbliche (Schmiede-) Berufsgenossenschaft und eine Versicherungsanstalt (die der See-Berufsgenossenschaft).

11. Gegenstand der Versicherung ist der Ersatz des Schadens, welcher infolge eines Unfalls beim Betriebe oder Dienste durch Körperverletzung oder Tötung entsteht. Dem entsprechend bestehen die Leistungen der Versicherung (in Einzelheiten gegen früher etwas abgeändert) jetzt normaliter

1) im Falle der Körperverletzung vom Beginn der 14. Woche nach dem Erleiden des Unfalles (für die ersten 13 Wochen ist durch die Krankenversicherung gesorgt): a) in freier ärztlicher Behandlung, Arznei und sonstigen Heilmitteln sowie in den zur Sicherung des Erfolges des Heilverfahrens und zur Erleichterung der Folgen der Verletzung erforderlichen Hülfsmitteln (Krücken, Stützapparaten u. dgl.); b) in einer Rente für die Dauer der Erwerbsunfähigkeit. Diese Rente beträgt bei völliger Erwerbsunfähigkeit für deren Dauer $66\frac{2}{3}$ des Jahresarbeitsverdienstes (Vollrente), bei teilweiser Erwerbsunfähigkeit besteht sie in demjenigen Teil der Vollrente, welcher dem Masse der durch den Unfall herbeigeführten Einbusse an Erwerbsfähigkeit entspricht (Teilrente); bei völliger Erwerbsunfähigkeit und derartiger Hülflosigkeit, dass der Verletzte ohne fremde Hülfe und Pflege nicht bestehen kann, darf eine Rente gewährt werden, welche die Vollrente übersteigt und den vollen Jahresarbeitsverdienst erreichen kann; die Teilrente darf vorübergehend bis auf den Betrag der Vollrente erhöht werden, wenn der Verletzte aus Anlass des Unfalles unverschuldet arbeitslos wird;

2) im Falle des Todes des Versicherten infolge des Unfalls: a) in einem Sterbegeld in Höhe von $^1/_{15}$ des Jahresarbeitsverdienstes, jedoch mindestens 50 Mark, und b) in einer den Hinterbliebenen zu

zahlenden Rente. Die Witwe erhält bis zu ihrem Tode oder bis zur Wiederverheiratung eine Rente von 20%, jedes hinterbliebene Kind bis zum zurückgelegten 15. Lebensjahr ebenfalls eine Rente von 20% des Jahresarbeitsverdienstes des Verstorbenen. Im Falle der Wiederverheiratung wird die Witwe mit 60% des Jahresarbeitsverdienstes abgefunden. Auch Ascendenten wird, falls ihr Lebensunterhalt ganz oder überwiegend durch den Verstorbenen bestritten worden war, bis zum Wegfall der Bedürftigkeit eine Rente von 20% des Arbeitsverdienstes gewährt. Die Renten an alle Hinterbliebenen dürfen 60% insgesamt nicht übersteigen.

An die Stele der unter 1) aufgeführten Leistungen kann bis zum Abschluss des Heilverfahrens freie Kur und Verpflegung in einem Krankenhause gewährt werden, dann erhalten die Angehörigen für die Dauer der Heilbehandlung die unter 2) b) genannten Renten.

Wenn in der Erwerbsfähigkeit des Verletzten wesentliche Änderungen eintreten, kann die Rente dementsprechend erhöht oder ermässigt werden. Bei teilweiser Erwerbsunfähigkeit kann der Rentenberechtigte, wenn seine Rente 15% oder weniger der Vollrente beträgt, durch eine Kapitalzahlung abgefunden werden; die Höhe dieser Abfindung ist zwischen den Beteiligten zu vereinbaren. Rentenberechtigte Ausländer, die ihren Wohnsitz im deutschen Reiche aufgeben, erhalten auf ihren Antrag den dreifachen Jahresbetrag ihrer Rente als Abfindung.

12. Sämtliche Entschädigungen werden durch die Post unentgeltlich in monatlichen Teilbeträgen pränumerando an die Berechtigten gezahlt. Nach Ablauf des Rechnungsjahres erhält die Post die vorgeschossenen Zahlungen von derjenigen Berufsgenossenschaft erstattet, welche die Zahlungsanweisung an die Post erlassen hat.

13. Die Berufsgenossenschaften sind mehrfach befugt, über diese Normalleistungen hinauszugehen, so dürfen sie z. B. die Heilbehandlung schon vor Ablauf von 13 Wochen nach dem Unfall übernehmen, auch können sie jetzt einem Rentenempfänger auf seinen Antrag an Stelle der Rente Aufnahme in ein Invalidenhaus oder eine ähnliche Anstalt gewähren.

Von besonderer Bedeutung ist die Befugnis der Berufsgenossenschaften über den Rahmen der Beseitigung und Milderung der Unfallfolgen hinauszugehen, indem sie der Entstehung von Unfällen entgegenwirken. Sie dürfen nach Beratung mit Arbeitervertretern Unfallverhütungs-Vorschriften erlassen, welche gegen Unfälle möglichst schützende Betriebseinrichtungen und geeignete Belehrung der Arbeiter über die Behandlung der benutzten Maschinen bezwecken; tun sie das, so sind sie verpflichtet, die Befolgung dieser Vorschriften zu überwachen und können Zuwiderhandlungen durch Geldstrafen ahnden. Namentlich die gewerblichen Berufsgenossenschaften haben auf dem Gebiete der Unfallverhütung bereits sehr anerkennenswertes geleistet, die landwirtschaftlichen Berufsgenossenschaften stehen dagegen noch ziemlich weit zurück. Der Erfolg ist nicht ausgeblieben. Wie Tabelle B zeigt, ist zwar die Zahl der Unfälle, die in jedem Jahre zum ersten Male zu entschädigen sind, noch immer im Wachsen begriffen, es hat aber die Zahl der schweren Unfälle, die den Tod oder eine dauernde vollständige Erwerbsunfähigkeit zur Folge hatten, verhältnismässig abgenommen. Während in der ersten Zeit der Unfallversicherung ungefähr $^1/_4$ bis $^1/_5$ aller Fälle schwere Unfälle waren, sind es jetzt nur noch kaum 10%, wogegen die leichten Unfälle mit dauernder teilweiser oder mit vorübergehender Erwerbsunfähigkeit des Verletzten 90% ausmachen. In Übereinstimmung damit sind die Kosten, die im Durchschnitt pro Jahr auf einen

Entschädigungsfall kamen, allmälig geringer geworden, z. B. 1890: 203 Mark; 1895: 158 Mark; 1900: 147 Mark. Diese günstige Wendung ist zwar zum Teil auch durch die mit immer zunehmenden Kosten verbesserte Heilbehandlung hervorgebracht, am meisten hat aber zweifellos die Unfallverhütung dazu mitgewirkt.

Ein ganz neues Feld der Tätigkeit ist den Berufsgenossenschaften durch die Gesetzesrevision des Jahres 1900 eröffnet worden. Die Genossenschaften sind jetzt berechtigt, mit Genehmigung des Bundesrats und unter Aufsicht des Reichs-Versicherungsamts Einrichtungen zu treffen 1) zur Versicherung der Betriebsunternehmer und der ihnen in Bezug auf Haftpflicht gleichgestellten Personen gegen Haftpflicht; 2) zur Errichtung von Rentenzuschuss- und Pensionskassen für Betriebsbeamte sowie für die Mitglieder der Berufsgenossenschaft, die bei ihr versicherten Personen und die Beamten der Berufsgenossenschaft, sowie für die Angehörigen dieser Personen. Die Teilnahme an diesen Einrichtungen darf nur freiwillig sein. Bis jetzt hat noch keine Berufsgenossenschaft von dieser Berechtigung Gebrauch gemacht. Es ist nicht zu verkennen, dass es auf diesem Gebiete leicht zu einem erbitterten Kampfe zwischen den Berufsgenossenschaften und den privaten Versicherungsunternehmungen kommen kann.

14. Es ist schon erwähnt worden, dass die Zahl auch der zum ersten Male entschädigten Unfälle noch immer im Wachsen begriffen ist, dass sich also die Betriebsunfälle von Jahr zu Jahr vermehrt haben; das ist sowohl bei den gewerblichen wie auch bei den landwirtschaftlichen Berufsgenossenschaften der Fall, und zwar nicht nur den absoluten Zahlen nach, sondern auch im Verhältnis zu der Zahl der Versicherten. Es hat nämlich bei je 1000 Versicherten die Zahl der zum ersten Male entschädigten Verletzten betragen:

IM JAHRE	Bei den gewerblichen Berufsgenossenschaften	Bei den landwirtschftl Berufsgenossenschaften
1885	0.08	....
1886	2.72	....
1887	4.14	....
1888	4.35	0.14
1889	4.71	0.82
1890	5.29	1.55
1891	5.55	1.58
1892	5.64	1.89
1893	6.03	2.24
1894	6.25	2.64
1895	6.24	3.04
1896	6.72	3.84
1897	6.91	4.06
1898	7.10	4.26
1899	7.39	4.58
1900	7.46	4.50
1901	8.07	5.00

Für den Versicherungsfachmann wird es ein besonderes Interesse haben, genaueres über die Abhängigkeit der Unfallhäufigkeit vom Alter zu erfahren, leider kann hierüber nur wenig gesagt werden. Nach der Unfallstatistik für 1897 kamen in diesem Jahre innerhalb der Gewerbe-, Bau- und See-Unfallversicherung

AUF 1000 VERSICHERTE DES NACHBEZEICHNETEN ALTERS	Verletzte und Getötete		
	bei den männl Versicherten	bei den weiblichen Versicherten	bei allen Versicherten
Unter 16 Jahr	2.7	1.6	2.4
16 bis unter 18 Jahr	3.6	1.6	3.2
18 " 20 "	4.3	1.3	3.6
20 " 30 "	6.2	1.6	5.4
30 " 40 "	10.1	1.9	9.2
40 " 50 "	13.6	2.5	12.3
50 " 60 "	15.3	3.2	13.8
60 " 70 "	16.0	2.6	14.2
70 Jahr und darüber	9.9	1.1	8.5
Im Durchschnitt	8.1	1.7	7.0

Es ist danach bei den genannten Berufsgenossenschaften (ohne die zugehörigen Versicherungsanstalten) die Unfallgefahr bei den männlichen Versicherten sehr viel grösser als bei den weiblichen, was seine Erklärung darin finden wird, dass die männlichen Versicherten schwerer und intensiver arbeiten als die weiblichen. Bei beiden Geschlechtern ist die Unfallgefahr in den höheren Lebensaltern, wo die Rüstigkeit und körperliche Gewandheit nachgelassen hat, am grössten. Der Rückgang bei den ganz alten Versicherten erklärt sich dadurch, dass solche Versicherte überhaupt nur noch leichtere Arbeiten verrichten können.

15. Die Entscheidung darüber, wie die Mittel für die Unfallversicherung aufzubringen seien, hat lange geschwankt. Nach dem ersten Entwurfe zu einem Unfallversicherungsgesetze (1881) sollten diese Mittel aus Beiträgen fliessen, welche zu $\frac{2}{3}$ von den Arbeitgebern, zu $\frac{1}{3}$ von den Versicherten zu übernehmen seien. Da aber nicht alle Versicherten leistungsfähig seien, so sollte für die Arbeiter mit einem 750 Mark nicht übersteigenden Jahresverdienst das Reich das fragliche Drittel übernehmen. Obwohl der Reichstag diese Beteiligung des Reiches ablehnte, erschien sie in dem zweiten Gesetzentwurfe doch wieder, nachdem der erste Entwurf nicht zu einem Gesetze gediehen war. Die Beihülfe aus Reichsmitteln war beibehalten, weil darin ein billiges Äquivalent für die aus der Regelung der Unfallversicherung sich ergebende Erleichterung der öffentlichen Armenlast zu finden sei, dessen Übernahme auf das Reich um so gerechtfertigter sei, als jene Regelung auf eine nicht ausschliesslich im Interesse der Industrie, sondern wesentlich auch zur Förderung staatlicher Zwecke erfolgende Belastung der industriellen Betriebe hinausliefe und demnach eine Mitverwendung öffentlicher Mittel wenigstens so lange geboten erscheinen lasse, bis durch die Erfahrung nachgewiesen sein werde, dass jene Belastung von der Industrie ohne Gefährdung ihres Bestandes, ihrer Entwickelungsfähigkeit und namentlich auch ihrer Konkurrenzfähigkeit auf dem internationalen Markte getragen werden könne. Der Reichstag lehnte indessen den Reichszuschuss abermals ab. Von Wichtigkeit war es sodann, dass man die Fürsorge für die durch Unfall Verletzten während der ersten 13 Wochen den Krankenkassen überliess, und den Beginn der Leistungen aus der Unfallversicherung auf den Beginn der 14. Woche nach dem Unfall verschob. Die Kosten der Krankenversicherung werden zu $\frac{2}{3}$ von den Versicherten getragen, diesen fallen also auch $\frac{2}{3}$ der Unfallkosten für die ersten 13 Wochen zu. Dafür hat man die Versicherten von allen weiteren direkten Lasten aus der Unfallversicherung befreit, und die aus der Unfallversicherung entstehenden Kosten vollständig

den Arbeitgebern aufgelegt. Theoretisch lässt sich die alleinige Belastung der Arbeitgeber auch wohl aus dem Haftpflichtgedanken begründen, wonach die Kosten der Unfallversicherung zum grössten Teile als Produktionskosten angesehen werden können. — Nur insofern haben die Versicherten allerdings doch an den Kosten der Unfallversicherung teilzunehmen, als sie durch Steuern u. s. w. mit dazu beitragen, die öffentlichen Mittel aufzubringen, aus denen die Ausführungsbehörden die Unfallkosten bestreiten. Diese Beteiligung der Versicherten ist aber kaum nennenswert, zumal die gesamten Leistungen der Ausführungsbehörden nur gering sind im Vergleich zu den Leistungen der Berufsgenossenschaften (vergl. Tabelle B).

16. Die Unfallversicherung der Arbeiter war die erste reichsgesetzliche Versicherung, bei der es sich um die Deckung lang laufender Renten handelte. Demnach war hier zum ersten Male die Frage zu entscheiden, welches Beitragssystem das geeignetste sei. Dass vom rein versicherungstechnischen Standpunkte aus sich das Prämienverfahren am meisten empfahl, darüber lässt sich nicht streiten, es kamen aber auch andere, namentlich volkswirtschaftliche Gesichtspunkte mit in Betracht; es durfte die deutsche Industrie nicht mit Beiträgen belastet werden, die sie im Hinblick auf die internationale Konkurrenz so lange vielleicht nicht zu tragen imstande war, als andere Staaten dem Reiche nicht auf das Gebiet der Arbeiterversicherung gefolgt waren. Auch schien ein verständig eingerichtetes Umlageverfahren wohl zulässig, weil die Versicherung als Zwangsversicherung für so grosse Verbände (Berufsgenossenschaften) geplant war, dass man annehmen durfte, sie würden auch bei schlechten geschäftlichen Konjunkturen leistungsfähig bleiben. Man hat daher unter dem Einfluss der Vertreter der Industrie das Prämienverfahren, wie es in dem ersten Entwurfe eines Unfallversicherungsgesetzes (1881) vorgesehen war, fallen lassen und ist bereits in dem zweiten Entwurfe (1883) grundsätzlich zu einem Verfahren übergegangen, bei dem der jährliche Bedarf umgelegt wird. Hieran hat man bis jetzt festgehalten. Das Gesetz selbst weicht von dem letzten Entwurf nur insofern ab, als es an die Stelle eines in den ersten Jahren durch die Umlegung mit aufzubringenden fakultativen einen hohen obligatorischen Reservefonds setzte. Nach dem Gesetze von 1885 sind an Zuschlägen zur Bildung des Reservefonds bei der erstmaligen Umlegung der Entschädigungsbeträge 300%, bei der zweiten 200%, bei der dritten 150%, bei der vierten 100%, bei der fünften 80%, bei der sechsten 60% und von da an bis zur elften Umlegung jedesmal 10% weniger als Zuschlag zu den Entschädigungsbeträgen zu erheben. Diese Bestimmungen sind bei der Revision der Unfallversicherungsgesetze vom Jahre 1900 durch folgenden Zusatz erweitert worden. Nach Ablauf der ersten elf Jahre und, sofern das elfte Jahr beim Inkrafttreten dieses Zusatzes schon überschritten ist, von diesem letzten Zeitpunkte ab, haben die Berufsgenossenschaften dem jeweiligen Bestande des gesetzlichen Reservefonds 3 Jahre lang je 10% und weiter in Zeiträumen von je 3 Jahren je 1% weniger bis herab zu je 4% alljährlich zuzuschlagen und zwar jedesmal unter Anrechnung der Zinsen. Nach Ablauf dieser Zeit sind aus den Zinsen des Reservefonds diejenigen Beträge zu entnehmen, welche erforderlich sind, um eine weitere Steigerung des auf eine jede versicherte Person im Durchschnitt entfallenden Umlagebeitrags zu beseitigen. Die bei Gelegenheit der Revision im Reichstag gegebene Anregung, künftig allgemein den Kapitalwert der jährlich entstehenden Leistungen umzulegen, hat keinen Erfolg gehabt. Auf die Art der Bemessung der Umlagebeträge für die einzelnen Unternehmer braucht hier

nicht weiter eingegangen zu werden, es genügt, zu bemerken, dass dafür im allgemeinen die von den einzelnen Unternehmern gezahlten Lohnsummen und die Gefährlichkeit der Betriebe und der Arbeitstätigkeit massgebend sind.

17. Um die Ansprüche der Versicherten auf alle Fälle sicher zu stellen, bestimmt das Gesetz, dass, wenn eine Berufsgenossenschaft leistungsunfähig werden sollte, sie aufzulösen ist, und dass mit der Auflösung der Genossenschaft ihre Verpflichtungen auf das Reich, oder bei einigen Berufsgenossenschaften auf einen Bundesstaat übergehen. Bis jetzt haben sich aber noch alle Genossenschaften leistungsfähig gezeigt, so dass diese Gesetzesbestimmung noch keine praktische Bedeutung bekommen hat.

18. Das Verfahren, einfach den jährlichen Bedarf und die für den Reservefonds vorgeschriebenen Einlegungen umzulegen, wie es nach dem Vorstehenden das Gesetz im Prinzip angenommen hat, erweist sich als unzweckmässig, wenn die Mitgliederzahl voraussichtlich einem starken Wechsel unterliegt, oder wenn die versicherungspflichtige Beschäftigung ihrer Natur nach nur vorübergehend ist, also bei Tiefbauten allgemein und bei anderen Bauten, deren Ausführung nicht gewerbsmässig erfolgt (Regiebauten). Deshalb ist man bei der Tiefbau-Berufsgenossenschaft und bei ihrer Versicherungsanstalt sowie bei den Versicherungsanstalten der Baugewerks-Berufsgenossenschaften von der Umlegung des Jahresbedarfs abgegangen. Bei der Tiefbau-Berufsgenossenschaft wird nicht der einfache Jahresbedarf (mit Zuschlägen für den Reservefonds), sondern ein Betrag umgelegt, der ausreicht, dass durch ihn ausser den sonstigen Leistungen der Genossenschaft (einmalige Entschädigungen, Abführungen an den Reservefonds, Verwaltungskosten) der Kapitalwert der ihr im abgelaufenen Rechnungsjahr zur Last gefallenen Renten gedeckt wird. Die Versicherungsanstalten dagegen erheben feste Prämien, die alle drei Jahre vom Reichs-Versicherungsamt im voraus zu bestimmen sind, und die ausreichen sollen, dass durch sie ausser den sonstigen Kosten der Versicherungsanstalt auch der Kapitalwert derjenigen Leistungen aufgebracht wird, welche der Versicherungsanstalt aus den Unfällen eines Jahres im Durchschnitt voraussichtlich erwachsen werden. Bei der neu errichteten Versicherungsanstalt der See-Berufsgenossenschaft kommt dasselbe Verfahren zur Anwendung, weil fortlaufend steigende Beiträge, wie sie dem Umlageverfahren eigentümlich sind, für die Fischerei und die Kleinbetriebe der Seeschiffahrt nicht angebracht sind. Mit Rücksicht auf die ungünstige finanzielle Lage der Fischer und Kleinschiffer sind die Beiträge von den Küstenbezirke umfassenden weiteren Kommunalverbänden der Seeuferstaaten zu entrichten. Der auf die einzelnen Kommunalverbände entfallende Teil wird zur Hälfte wie die sonstigen Lasten des Kommunalverbandes, zur anderen Hälfte von den Unternehmern aufgebracht, doch kann dieser letztere Teil auch von den Kreisen oder Gemeinden übernommen werden.

19. Die Berechnung der Kapitalwerte hatte, soweit es sich um Renten an Hinterbliebene von Versicherten handelte, keine Schwierigkeiten, es konnten die Werte für die Renteneinheiten aus vorhandenen Tafeln entnommen werden. Anders lag die Sache bezüglich der Renten an Verletzte, weil es anfangs an Erfahrungen über das Ausscheiden der Verletzten aus dem Rentengenuss fehlte. Sobald indessen einigermassen ausreichende Erfahrungen bei der Tiefbau-Berufsgenossenschaft gesammelt waren, ist aus ihnen ein Tarif berechnet worden, der hier besonders erwähnt zu werden verdient, weil er der erste ist, bei dem neben dem Lebensalter des Verletzten auch die Dauer des Rentenbezuges berück-

sichtigt worden ist. Ein Auszug aus diesem Tarif darf deshalb hier auch nicht fehlen; genaueres findet man in den „Amtlichen Nachrichten des Reichs-Versicherungsamts," 1894, S. 297.

ALTER BEIM RENTENBEGINN	Kapitalwert einer mit monatlich $\frac{1}{12}$ im voraus zahlbaren Verletzten-Rente				
	zur Zeit des Rentenbeginns	nach Ablauf von			
		1	2	3	4
		Rentenbezugsjahren			
20	5.38	8.16	10.49	10.84	10.92
30	5.58	7.90	10.13	10.58	10.68
40	5.74	7.76	9.58	10.33	10.39
50	5.95	8.05	9.37	9.69	9.64
60	5.91	7.12	7.81	7.80	7.57
70	4.99	5.34	5.36	5.20	4.95
80	3.09	3.23	3.18	3.09	2.93

Diese Werte sind aus den Erfahrungen der Tiefbau-Berufsgenossenschaft, unter Annahme eines Zinsfusses von $3\frac{1}{2}\%$, abgeleitet. Seitdem hat die Heilbehandlung der Verletzten grosse Fortschritte gemacht, und die Änderungen von Renten infolge wesentlicher Änderungen in dem Befinden des Rentenberechtigten spielen nicht mehr die Rolle wie vordem; deshalb passt dieser Tarif nicht ganz mehr auf die jetzigen Verhältnisse, er liefert zu kleine Kapitalwerte. Eine Wiederholung dieser Untersuchungen an dem neueren Materiale ist daher ein Bedürfnis.

20. Die Prämien für die Versicherungsanstalten der Baugewerks-Berufsgenossenschaften werden nach Gefahrenklassen in Prozenten des Lohnes angegeben. Zuletzt sind sie für die 3 Jahre 1903 bis 1905 festgesetzt worden (Amtl. Nachr. d. Reichs-Versicherungsamts, 1902, S. 655), sie liegen je nach der Gefahrenklasse zwischen 0.6 und 12% des Lohnes; im Durchschnitt für alle Versicherten haben sie 1900/02 3.59% betragen. Für die Versicherungsanstalt der See-Berufsgenossenschaft ist der Beitrag für jede erwerbsfähige Person, welche im vorhergegangenen Jahre im Gebiete eines Küstenbezirke umfassenden weiteren Kommunalverbandes beschäftigt gewesen ist, auf 7 Mark festgesetzt worden (Amtl. Nachr. d. Reichs-Versicherungsamts, 1903, S. 255).

21. Die Träger der Unfallversicherung haben über ihre Rechnungsergebnisse jährlich Aufstellungen zu machen und dem Reichs-Versicherungsamte einzureichen, das eine Nachweisung hierüber regelmässig in der Januar-Nummer seiner „Amtlichen Nachrichten" veröffentlicht. Auch hat das Amt nicht unterlassen, die Ergebnisse eingehend statistisch zu bearbeiten: Eine „Statistik der Unfallfolgen" ist in dem Jahrgang 1899, S. 666 ff., der Amtlichen Nachrichten des Reichs-Versicherungsamtes, und eine „Statistik der Unfallversicherung" als 1. Beiheft zu den Amtlichen Nachrichten 1900 erschienen; diese Arbeiten bringen die Erfahrungen der Jahre 1885 bis 1897 oder 1898; in der „Unfallstatistik für das Jahr 1897," Beiheft zu dem Jahrgang 1899 und 3. Beiheft zu dem Jahrgang 1900 der Amtlichen Nachrichten, sind die Unfälle des genannten Jahres mit besonderer Ausführlichkeit behandelt. — Die vorhin und vor allem auch die in der Tabelle B gegebenen Zahlen sind diesen Veröffentlichungen entnommen.

In den Jahren 1885 bis 1901 sind für 1,045,149 Unfälle Entschädigungen festgesetzt worden, und es haben in runden Zahlen die gesamten

Einnahmen 1,029 Millionen Mark betragen; die privaten Unternehmer haben allein 909 Millionen Mark aufgebracht, und die Ausführungsbehörden haben 62 Millionen aus öffentlichen Mitteln beigesteuert. Unter den insgesamt 847 Millionen Mark Ausgaben finden sich 704 Millionen Mark für Entschädigungen an die Versicherten (einschliesslich 19 Millionen Mark für Heilbehandlung) und 142 Millionen Mark für Verwaltung. Das gesamte Vermögen belief sich am Ende des Jahres 1901 auf 183 Millionen Mark, wovon 152 Millionen Mark auf den Reservefonds (ohne Deckungskapital für die Renten der Tiefbau-Berufsgenossenschaft und der Versicherungsanstalten) kommen.

Die Invalidenversicherung.

22. Zur Durchführung der Invalidenversicherung sind 31 territorial abgegrenzte *Versicherungsanstalten* und 9 *besondere Kasseneinrichtungen* (Knappschafts- und Eisenbahnkassen) berufen.

Der Kreis der Versicherungspflichtigen ist seit dem Bestehen der Invalidenversicherung nur wenig geändert worden. Die Zahl der Versicherten ist allein bei den besonderen Kasseneinrichtungen genau bekannt, bei den Versicherungsanstalten ist man auf Schätzungen nach den Ergebnissen der Berufs- und Gewerbezählungen angewiesen, kennt die Zahl der Versicherten also nur annähernd und ist namentlich hinsichtlich der zeitlichen Änderung dieser Zahl sehr im Ungewissen. Welche Schwierigkeiten das für die technischen Rechnungen zur Folge hat, braucht hier kaum besonders betont zu werden.

Für Mitte 1895 gelten annähernd die folgenden Zahlen:

Alter	Versicherungsanstalten		Kasseneinrichtungen		Insgesamt
	Männlich	Weiblich	Männlich	Weiblich	
	Tausend Personen				
16 bis unter 18.	729	542	21	..	1,292
18 " 20.	723	561	31	..	1,315
20 " 30.	2,233	1,487	184	1	3,905
30 " 40.	1,464	545	154	1	2,165
40 " 50.	946	403	88	2	1,440
50 " 60.	633	325	45	2	1,004
60 " 70.	331	178	14	1	524
70 und darüber.	108	58	2	..	168
Insgesamt. ..	7,168	4,098	540	8	11,813

Das Gesetz teilt die Versicherten nach der Höhe des Jahresarbeitsverdienstes in folgende Lohnklassen:

Lohnklasse I bis zu 350 M. einschliesslich;
Lohnklasse II von mehr als 350 bis 550 M.;
Lohnklasse III von mehr als 550 bis 850 M.;
Lohnklasse IV von mehr als 850 bis 1150 M.;
Lohnklasse V von mehr als 1150 M.

Die Lohnklasse V ist erst durch das Gesetz vom 13. Juli 1899 geschaffen worden, bis einschliesslich 1899 bildeten die jetzigen Lohnklassen IV und V die Klasse IV. Seinem Lohne entsprechend kann derselbe Arbeiter zu verschiedenen Zeiten in verschiedenen Lohnklassen versichert sein.

Nimmt man an, was allerdings nicht ganz zutrifft, dass sich die Ver-

sicherten auf die Lohnklassen ebenso verteilen, wie die Zahl der in einem Jahre entrichteten Beiträge, so findet man, dass im Jahre 1901 von 1000 Versicherten kamen auf die

Lohnklasse	I	II	III	IV	V
bei den Versicherungs-Anstalten.	179	336	239	162	84
bei den Kassen-Einrichtungen...	11	45	305	202	437

23. Die Leistungen der Invalidenversicherung haben ausnahmslos die Entrichtung von Beiträgen (durch Einkleben von Beitragsmarken in Quittungskarten) zur Voraussetzung, und sie bestehen in der Gewährung von Invaliden-, Kranken- und Altersrenten und in der Rückerstattung von Beiträgen. Zu diesen Leistungen sind die Versicherungsträger verpflichtet; sie sind ausserdem berechtigt, das Heilverfahren zu übernehmen, Rentenberechtigte auf Antrag gegen Einbehaltung der Rente in Invalidenhäusern oder ähnlichen Anstalten zu verpflegen und andere sogenannte Nebenleistungen zu gewähren.

Invalidenrente erhält nach Ablauf einer bestimmten Wartezeit, ohne Rücksicht auf das Lebensalter, derjenige Versicherte, dessen Erwerbsfähigkeit dauernd auf weniger als $\frac{1}{3}$ gesunken ist (Invalidenrente), oder der während 26 Wochen ununterbrochen erwerbsunfähig gewesen ist, für die fernere Dauer der Erwerbsunfähigkeit (Krankenrente). Dabei ist Voraussetzung, dass der Versicherte die Erwerbsunfähigkeit nicht vorsätzlich herbeigeführt hat.

Die Wartezeit betrug unter der Herrschaft des alten Gesetzes (bis einschliesslich 1899) 5 Beitragsjahre (zu je 47 Wochen), wobei für die Übergangszeit Erleichterungen gegeben waren, sodass schon nach Ablauf eines Beitragsjahres (47 Wochen) Invalidenrenten bewilligt werden konnten; sie ist jetzt festgesetzt auf 200 Beitragswochen, wenn mindestens 100 Beiträge auf Grund der Versicherungspflicht (also nicht lediglich freiwillig) geleistet worden sind, andernfalls auf 500 Beitragswochen. Als Beitragszeiten gelten hier, wie auch bei der Berechnung der Höhe der Renten (vergleiche unten), auch die Zeiten nachgewiesener Krankheiten und militärischer Dienstleistungen, ohne dass für diese Zeiten Beiträge entrichtet zu werden brauchen.

Der Jahresbetrag setzt sich zusammen aus 50 M. als Reichszuschuss, einem Grundbetrage und Rentensteigerungen.

Der Grundbetrag betrug früher 60 M.; er ist jetzt nach Lohnklassen abgestuft und beläuft sich für Lohnklasse I auf 60 M., für II auf 70 M., für III auf 80 M., für IV auf 90 M. und endlich für V auf 100 M. Seiner Berechnung werden stets 500 Beitragswochen zu Grunde gelegt; sind weniger als 500 Beitragswochen nachgewiesen, so werden für die fehlenden Wochen Beiträge der Lohnklasse I in Anrechnung gebracht; sind mehr als 500 Beitragswochen nachgewiesen, so sind stets die 500 Beiträge der höchsten Lohnklasse zu Grunde zu legen. Kommen für diese 500 Wochen verschiedene Lohnklassen in Betracht, so wird als Grundbetrag der Durchschnitt der diesen Beitragswochen entsprechenden Grundbeträge angerechnet.

Die Steigerung der Invalidenrente beträgt für jede Woche, für welche ein Beitrag nachgewiesen ist

	nach dem alten Gesetz	nach dem jetzigen Gesetz
in Lohnklasse I	2 Pf.	3 Pf.
II	6 Pf.	6 Pf.
III	9 Pf.	8 Pf.
IV	13 Pf.	10 Pf.
V	—	12 Pf.

Für die als Beitragszeit geltenden Krankheiten und militärischen Dienstleistungen wird der Steigerungssatz der Lohnklasse II zu Grunde gelegt.

Die Krankenrenten werden wie die Invalidenrenten berechnet.

Altersrente erhält nach Ablauf einer bestimmten Wartezeit, ohne Rücksicht auf das Vorhandensein von Erwerbsunfähigkeit, derjenige Versicherte, welcher das 70. Lebensjahr vollendet hat.

Die Wartezeit für die Altersrente beträgt nach dem alten Gesetz 30 Beitragsjahre (1410 Wochen), jetzt 1200 Beitragswochen; dabei sind für die Übergangszeit Erleichterungen vorgesehen, sodass sofort beim Inkrafttreten des alten Gesetzes Altersrenten in grosser Zahl bewilligt werden konnten.

Nach dem alten Gesetze bestand die Altersrente aus dem festen Reichszuschuss von 50 M. und einer Rentensteigerung für 1410 Wochen. Nach dem jetzt geltenden Recht besteht die Altersrente aus dem festen Reichszuschuss von 50 M., einem von den Versicherungsanstalten aufzubringenden Teile, welcher beträgt in der Lohnklasse I 60 M., in II 90 M., in III 120 M., in IV 150 M. und in V 180 M. Kommen Beiträge in verschiedenen Lohnklassen in Betracht, so wird der Durchschnitt der diesen Beiträgen entsprechenden Altersrente gewährt. Sind mehr als 1200 Beitragswochen nachgewiesen, so sind die 1200 Beiträge der höchsten Lohnklassen der Berechnung zu Grunde zu legen.

Alle Renten (Invaliden- wie Altersrenten) werden so nach oben abgerundet, dass der Monatsbetrag auf volle 5 Pf. ausläuft. Über die allmähliche Zunahme des durchschnittlichen Jahresbetrages der Renten und der Zahl der jährlich bewilligten Renten giebt Tabelle C Auskunft. Ausländer, die ihren Wohnsitz im Deutschen Reich aufgeben, können mit dem dreifachen Betrage der Jahresrente abgefunden werden. Wenn weibliche Personen eine Ehe eingehen, steht ihnen ein Anspruch auf Beitragserstattung (H-Erstattung) zu, sofern für sie mindestens für 200 Wochen (nach dem alten Gesetze für 5 Beitragsjahre) Beiträge entrichtet sind und ihnen eine Rente noch nicht zugesprochen ist. Ein Anspruch auf Beitragserstattung steht ferner solchen Personen zu, die durch einen Unfall dauernd erwerbsunfähig werden (U-Erstattungen), weil sie für die Zeit des Bezuges der Unfallrente keinen Anspruch auf Leistungen aus der Invalidenversicherung haben werden (das alte Gesetz kannte diese U-Erstattungen nicht). Endlich steht ein Anspruch auf Beitragserstattung auch den Witwen oder den Vollwaisen eines verstorbenen Versicherten zu, wenn für diesen für mindestens 200 Wochen (nach dem alten Gesetze 5 Beitragsjahre) Beiträge entrichtet sind und ihm eine Rente noch nicht zugebilligt war (T-Erstattungen). In allen diesen Fällen wird die Hälfte der geleisteten Beiträge zurückgegeben. Mit der Erstattung der Beiträge erlöschen alle durch die vorhergehende Beitragsleistung erworbenen Anwartschaften.

24. Sämtliche Renten und Beitragserstattungen werden auf Anweisung der Versicherungsanstalten unentgeltlich durch die Post am Wohnort der Empfangsberechtigten gezahlt, die Renten monatlich im voraus. Die hierzu erforderlichen Mittel erhält die Post von den Versicherungsanstalten in monatlichen Zahlungen (Betriebsfonds) nach Schätzungen der Rechnungsstelle des Reichs-Versicherungsamtes. Am Schlusse des Jahres stellt die Rechnungsstelle fest, mit welchen Beträgen die einzelnen Versicherungsträger zu den tatsächlichen Zahlungen der Post heranzuziehen sind. Für die Verteilung der Zahlungen auf das Reich und die einzelnen Versicherungsträger schreibt das Gesetz ein ziemlich verwickeltes Verfahren vor; es soll dadurch einer allzu ungleich-

mässigen finanziellen Entwicklung der verschiedenen Versicherungsanstalten, wie sie sich unter dem alten Gesetze gezeigt hat, entgegengewirkt werden. Es ist nicht nötig, hierauf einzugehen, da es hier nur auf die Entwickelung der Invalidenversicherung als Ganzes ankommt.

25. Von den fakultativen Leistungen der Versicherungsträger hat sich bisher nur die Heilbehandlung zu schöner Blüte bringen lassen; es ist zu befürchten, dass bei der jetzt geltenden Definition der Beiträge (vergleiche Ziffer 27) andere Leistungen kaum werden in beträchtlichem Umfang in Angriff genommen werden, wenn nicht zuvor die Beiträge erhöht werden.

Das Heilverfahren kann von der Versicherungsanstalt bei erkrankten Versicherten übernommen werden, wenn zu besorgen ist, dass die Erkrankung Erwerbsunfähigkeit und damit einen Anspruch auf Invalidenrente zur Folge haben werde; es kann auch bei Rentenempfängern durchgeführt werden, wenn Wiedererlangung der Erwerbsfähigkeit zu erhoffen ist. Das Heilverfahren kann durch Pflege in einem Krankenhause oder einer Anstalt für Genesende bewirkt werden, doch bedarf es dazu der Zustimmung des Erkrankten, wenn er verheiratet ist, oder eine eigene Haushaltung hat, oder Mitglied der Haushaltung seiner Familie ist. Den Angehörigen ist eine Unterstützung zu zahlen. Die Versicherungsanstalten können das Heilverfahren auch, gegen Erstattung der Kosten, einer Krankenkasse übertragen. Es ist hier nicht der Ort, näher auf die Heilbehandlung einzugehen; die folgenden Zahlen und die Tabelle C, welche u. a. die für das Heilverfahren ausgegebenen Kosten nachweist, werden den Aufschwung, den diese Fürsorge bei den Trägern der Invalidenversicherung genommen hat, einigermassen erkennen lassen. Näheres hierüber findet man in der „Statistik der Heilbehandlung bei den Versicherungsanstalten und zugelassenen Kasseneinrichtungen der Invalidenversicherung," 1. Beiheft zu den Amtlichen Nachrichten des Reichs-Versicherungsamtes, 1902. — Insgesamt sind in Heilbehandlung genommen worden

im Jahre 1897	10,564	Personen
1898	13,758	Personen
1899	20,039	Personen
1900	27,427	Personen
1901	32,710	Personen
Zusammen	104,498	Personen

Die Berechtigung der Versicherungsträger, Rentenberechtigte auf ihren Antrag in einem Invalidenhause oder einer ähnlichen Anstalt unterzubringen, ist erst eine Errungenschaft des neuen Gesetzes; schon deshalb hat noch kein umfangreicher Gebrauch davon gemacht werden können. Ausserdem werden damit ziemlich hohe Kosten verbunden sein, die nicht jede Versicherungsanstalt wird übernehmen können. Daher lässt sich noch nicht absehen, welchen Gang die Sache gehen wird.

Andere Nebenleistungen, zu denen die Genehmigung des Bundesrats erforderlich ist, haben bisher nur insoweit gewährt werden können, als die Unterstützungen an Angehörige solcher Versicherten, die in Heilbehandlung genommen, über das gesetzliche Mindestmass vielfach haben erhöht werden können.

26. Die Mittel für die Invalidenversicherung werden aufgebracht durch Beiträge der Versicherten und der Arbeitgeber und durch das Reich. Die Heranziehung der Versicherten zur Beitragsleistung rechtfertigt sich hier durch die Erwägung, dass die allmälige Veränderung und das endliche Schwinden der Erwerbsfähigkeit das natürliche Los

jedes Arbeiters ist, gegen welches er nach dem Masse seiner Kräfte Vorsorge zu treffen sittlich und aus Gründen der öffentlichen Wohlfahrt verpflichtet ist. Wollte man aber den Arbeitern die gesamte Last aufbürden, so würden sie sie nicht tragen können; auch ist es nur billig, diejenigen mit heranzuziehen, welche an der humanen Sicherstellung des Loses der Arbeiter überhaupt ein Interesse haben, d. h. die Arbeitgeber. Die Befriedigung des berechtigten Bedürfnisses des Arbeiters nach einem erreichbaren Mass von Fürsorge für den Fall des Alters und der Invalidität, womit die gesamte Erwerbs- und Gesellschaftsordnung gestützt wird, ist aber auch ein lebhaftes Interesse der Allgemeinheit, sodass die Teilnahme der Allgemeinheit, d. h. des Reichs, an den Lasten der Invalidenversicherung schon hieraus begründet ist. Dazu kommt noch die Erwägung, dass durch die Invalidenversicherung eine erhebliche Erleichterung der öffentlichen Armenpflege herbeigeführt wird. Der Entwurf zu dem Gesetze von 1889 schlug daher vor, dass die Lasten der Invalidenversicherung zu je $\frac{1}{3}$ vom Reich, von den Arbeitgebern und von den Arbeitnehmern getragen werden sollten. Die Frage nach der Berechtigung eines Reichszuschusses und nach dem Umfang eines solchen hat zu lebhaften Erörterungen im Reichstag Anlass gegeben, schliesslich entschied man sich, abweichend von dem Entwurfe, dahin, dass er für jede Rente 50 Mark betragen solle. Ausserdem hat das Reich die auf die Zeiten militärischer Dienstleistungen entfallenden Lasten zu tragen. Die sonst erforderlichen Mittel haben die Arbeitgeber und Arbeitnehmer durch Beiträge in der Weise aufzubringen, dass der Arbeitgeber für die Entrichtung der Beiträge aufzukommen hat, aber berechtigt ist, dem Versicherten die Hälfte der Beiträge vom Lohn abzuziehen.

Das Reich löst seine Verpflichtungen nicht etwa durch Beitragszahlung an die Versicherungsträger ab, sondern es führt am Schlusse jedes Jahres die ihm nach den Ermittelungen der Rechnungsstelle des Reichs-Versicherungsamts aus den Rentenzahlungen des verflossenen Jahres entstandenen Lasten an die Post ab, die diese Beträge bis dahin vorschiesst. Die Beiträge der Arbeitgeber und der Versicherten sind Wochenbeiträge, sie fliessen durch Vermittelung der Post, die den Verkauf der Beitragsmarken besorgt, den Versicherungsanstalten zu.

27. Der Wochenbeitrag (für Versicherte und Arbeitgeber zusammen) stand nach dem alten Gesetze in Lohnklasse I auf 14 Pfennig, in II auf 20 Pfennig, in III auf 24 Pfennig und in IV auf 30 Pfennig; bei der Gesetzesänderung hat man dem die Lohnklasse V mit 36 Pfennig hinzugefügt. Die technische Bedeutung der Beiträge ist nach dem neuen Gesetz aber eine andere als früher. Nach dem alten Gesetze sollten sie erstmalig auf 10 Jahre gelten und dann nach je 5 weiteren Jahren immer neu festgesetzt werden; sie sollten so bemessen sein, dass durch sie gedeckt wurden die Verwaltungskosten, die Rücklagen zur Bildung eines Reservefonds, die durch Erstattung von Beiträgen voraussichtlich entstehenden Aufwendungen sowie der Kapitalwert der von den Versicherungsanstalten aufzubringenden Anteile an denjenigen Renten, welche in dem betreffenden Zeitraum voraussichtlich zu bewilligen sein würden. Es handelte sich also um Beiträge, welche wegen der immer mehr steigenden Rentenlast voraussichtlich von Periode zu Periode steigen würden, und durch welche im Laufe jeder Periode ausser den übrigen Kosten das Deckungskapital für die in der Periode bewilligten Renten, soweit sie den Versicherungsanstalten zur Last fallen, aufgebracht werden sollte. Nun stellte sich heraus, dass die berechneten Beiträge im Durchschnitt für das ganze Reich etwas zu hoch waren, und da eine Herabsetzung der Beiträge ebensowenig wünschenswert war wie eine erhebliche Ver-

grösserung der Versicherungs-Leistungen, so gab man den Beiträgen eine andere Bedeutung, wobei der Reservefonds allerdings beseitigt wurde. Nach dem neuen Gesetze sollen die Beiträge so bemessen sein, dass durch sie gedeckt werden die Kapitalwerte der den Versicherungsanstalten zur Last fallenden Beträge der Renten, die Beitragserstattungen und die sonstigen Aufwendungen der Versicherungsanstalten. An die Stelle der Kapitaldeckung nach Perioden ist jetzt also die Kapitaldeckung aller entstehenden Anwartschaften, das gewöhnliche Prämienverfahren, getreten. Wie weit die Rechnungen, die diesen Übergang als zulässig nachweisen sollen, sich als stichhaltig erweisen werden, bleibt abzuwarten; alle 10 Jahre ist eine Prüfung vorzunehmen; nach dem bisherigen Verlauf der Entwickelung ist kaum zu erwarten, dass die Beiträge in ihrer jetzigen Höhe ausreichen werden.

28. Über die versicherungstechnische Berechnung der Beiträge vergl. „Denkschrift über die Höhe der finanziellen Belastung, welche durch den Gesetzentwurf, betr. die Alters- und Invaliditätsversicherung, voraussichtlich hervorgerufen wird," Drucksache Nr. 10 des Reichstags, 7. Leg.-Periode, IV. Session 1888-1889, und „Denkschrift, betr. die Höhe und Verteilung der finanziellen Belastung aus der Invalidenversicherung," Drucksache zu Nr. 93 des Reichstags, 10. Leg.-Periode, I. Session 1898-1899. Diese Denkschriften sind im Reichsamt des Innern angefertigt. Der Rechnungsstelle des Reichs-Versicherungsamts liegt u. a. die statistische Beobachtung der Rentenempfänger ob, um Erfahrungen zu sammeln und Werte zu gewinnen, die für die Berechnung der Rentenlast eine möglichst gute Grundlage geben. Von den Arbeiten der Rechnungsstelle seien genannt: „Statistik der Ursachen der Erwerbsunfähigkeit (Invalidität) nach dem Invaliditäts- und Altersversicherungsgesetz," Beiheft zu den Amtlichen Nachrichten des Reichs-Versicherungsamts 1898, „Das Ausscheiden der Invalidenrentenempfänger aus dem Rentengenuss," 2. Beiheft zu den Amtl. Nachr. des R.-V.-A. 1901, und „Das Ausscheiden der Altersrentenempfänger aus dem Rentengenuss," Amtl. Nachr. des R.-V.-A. 1902, S. 532. Namentlich die Ausscheidetafel der Invalidenrentenempfänger wird das Interesse der Fachgenossen beanspruchen dürfen, da in ihr die Ausscheidewahrscheinlichkeit auch in ihrer Abhängigkeit von der Dauer des Rentenbezugs behandelt ist. Zwar werden die daraus folgenden Kapitalwerte wohl nur auf die reichsgesetzlichen Invaliden angewandt werden können, bei der Seltenheit solcher Werte scheint es aber doch angebracht, sie hier wenigstens für einige Lebensalter mitzuteilen, wobei zu bemerken ist, dass ihnen ein Zinsfuss von $3\frac{1}{2}\%$ zu Grunde liegt.

Alter beim Renten-Beginn	Kapitalwert einer im Jahresbetrage 1 im voraus zahlbaren Invalidenrente									
	Zur Zeit des Renten-beginns	nach Ablauf von								
		1	2	3	4	5	6	7	8	9
		Rentenbezugsjahren								
20.....	5.81	10.50	13.88	15.81	17.22	18.05	18.50	18.67	18.64	18.52
30.....	6.90	10.52	12.97	14.35	15.36	15.98	16.31	16.39	16.29	16.11
40.....	7.66	10.16	11.71	12.54	13.13	13.50	13.67	13.66	13.52	13.29
50.....	8.01	9.44	10.13	10.43	10.61	10.69	10.67	10.56	10.37	10.11
60.....	7.67	8.14	8.19	8.13	8.01	7.86	7.67	7.44	7.19	6.93
70.....	6.09	6.03	5.87	5.68	5.48	5.26	5.04	4.82	4.60	4.39
80.....	4.16	3.99	3.82	3.65	3.49	3.34	3.20	3.07	2.95	2.83

29. Auch bei der Invalidenversicherung sind, um die Ansprüche der Versicherten unter allen Umständen sicher zu stellen, besondere Garantien geschaffen. Reicht das Vermögen einer Versicherungsanstalt zur Deckung ihrer Verpflichtungen nicht aus, so haftet den Gläubigern der Kommunalverband, für den die Versicherungsanstalt errichtet ist, und im Falle seines Unvermögens oder, wenn die Versicherungsanstalt für den Bundesstaat oder Teile desselben errichtet ist, der Bundesstaat. Praktische Bedeutung hat diese Gesetzesvorschrift noch nicht gewonnen.

30. Wie die Träger der Unfallversicherung, so haben auch die der Invalidenversicherung jährlich bestimmte Aufstellungen über ihre Rechnungsergebnisse dem Reichs-Versicherungsamt einzureichen, das eine Nachweisung darüber regelmässig in der Januar-Nummer seiner „Amtlichen Nachrichten" veröffentlicht. Eine „Statistik der Invalidenversicherung für die Jahre 1891 bis 1899" ist als 1. Beiheft zu den Amtl. Nachrichten 1901 erschienen. Die hier und in der Tabelle C gegebenen Zahlen beruhen auf diesen amtlichen Veröffentlichungen.

Insgesamt sind in den Jahren 1891 bis 1901 734,333 Invalidenrenten, 14,309 Krankenrenten und 389,986 Altersrenten bewilligt worden, und es haben in 907,598 Fällen Beitragserstattungen stattgefunden. Als Einnahmen sind rund 1607 Millionen Mark nachgewiesen, darunter 1220 Millionen Beiträge und 214 Millionen Mark Reichszuschuss. Ausgegeben sind 678 Millionen Mark, wovon 600 Millionen auf Entschädigungen der Versicherten kommen (einschl. 24 Millionen für Heilbehandlung), und 76 Millionen auf Verwaltungskosten. Das Vermögen betrug Ende 1901 rund 929 Millionen Mark und wird jetzt eine Milliarde schon überschritten haben. Man nimmt in der Regel an, dass von den Beiträgen die eine Hälfte von den Arbeitgebern und die andere Hälfte von den Versicherten aufgebracht sei, tatsächlich ist der Anteil der Arbeitgeber bedeutend höher, weil sehr viel Arbeitgeber von der Einbehaltung der halben Beiträge bei der Lohnzahlung absehen. In welchem Verhältnis der Anteil der Arbeitgeber an der Aufbringung der Reichsmittel, aus denen der Reichszuschuss gezahlt wird, zu dem der Versicherten steht, lässt sich naturgemäss auch nicht annähernd schätzen.

31. Werfen wir zum Schluss noch einen Blick auf das Ganze, so werden wir anerkennen müssen, dass das Deutsche Reich mit jetzt 56 Millionen Einwohnern in seiner Arbeiterversicherung ganz bedeutendes geleistet hat. Bis Ende 1901 hat die Arbeiterversicherung in mehr als 50 Millionen Fällen heilend und helfend zum Wohle der Minderbemittelten eingegriffen. Die Arbeitgeber haben 2754 und die Arbeitnehmer 2043 Millionen Mark an Beiträgen aufgebracht, und das Reich hat allein zu den gezahlten Renten 214 Millionen Mark beigesteuert. Den Versicherten sind 3162 Millionen Mark als Entschädigungen wieder zugeflossen, und es ist bis Ende 1901 ein Vermögen von 1294 Millionen Mark angesammelt worden, teils als Sicherheit, zumeist als Deckungskapital für die laufenden Renten und Anwartschaften. Nur unvollkommen lässt sich daran die Fülle des Segens ermessen, den die Versicherung über die im Deutschen Reiche beschäftigten Arbeiter gebracht hat, immerhin sind das Zahlen, die auch in diesem Lande, in dem man an grosse Zahlen gewöhnt ist, Anerkennung finden werden. Uns Deutsche aber sollen sie antreiben, vorwärts zu schreiten und die noch bestehenden Lücken in unserer Arbeiterversicherung auszufüllen; hoffentlich können wir auf dem nächsten Kongresse über die Einführung einer Allgemeinen Arbeiterhinterbliebenen-Versicherung Bericht erstatten.

TABELLE A.

Krankenversicherung. Reichsgesetzliche Kassen.

RECHNUNGSJAHR	Zahl der Krankenkassen	Zahl der Versicherten im Jahresdurchschnitt		Zahl der Erkrankungsfälle		Zahl der Krankheitstage		Durchschnittliche Dauer der Unterstützung mit Krankengeld	
		Männer	Frauen	Männer	Frauen	Männer	Frauen	Männer	Frauen
		Tausend Personen		Tausend Fälle		Tausend Tage		Tage	
1	2	3	4	5	6	7	8	9	10
1885 ...	18,942	(3,515)	(779)	(1,488)	(317)	20,853	4,448	....	....
1886 ...	19,357	(3,741)	(829)	(1,425)	(288)	21,884	4,397	....	...
1887 ...	19,715	(3,962)	(880)	(1,453)	(286)	22,540	4,573	....	....
1888 ...	20,468	4,415	983	1,480	283	24,532	4,996	16.6	17.7
1889 ...	20,822	4,949	1,196	1,696	346	27,366	6,062	16.1	17.5
1890 ...	21,173	5,266	1,313	2,007	415	32,041	7,136	16.0	17.2
1891 ...	21,498	5,472	1,408	1,964	434	32,915	7,884	16.8	18.2
1892 ...	21,588	5,511	1,445	2,029	449	34,527	8,229	17.0	18.3
1893 ...	21,226	5,557	1,549	2,259	535	36,669	9,530	16.2	17.8
1894 ...	21,552	5,675	1,608	2,018	475	34,494	9,192	17.1	19.4
1895 ...	21,992	5,835	1,690	2,176	528	36,481	9,989	16.8	18.9
1896 ...	22,111	6,152	1,793	2,220	544	37,206	10,402	16.8	19.1
1897 ...	22,477	6,450	1,887	2,372	593	39,994	11,520	16.9	19.4
1898 ...	22,607	6,783	1,987	2,395	607	40,931	12,270	17.1	20 2
1899 ...	22,872	7,069	2,087	2,782	694	46,566	13,840	16.7	19.9
Zusammen		....	....	29,763	6,793	489,000	124,469	....	....

RECHNUNGSJAHR	Einnahmen	Darunter Beitrage		Ausgaben	Darunter		Vermögen am Ende des Jahres	Darunter Reservefonds
		der Versicherten	der Arbeitgeber		Krankheitskosten	Verwaltungskosten		
	Tausend Mark							
	11	12	13	14	15	16	17	18
1885.....	66,100	41,681	14,518	52,647	47,305	3,385	26,076	20,940
1886.....	72,966	45,913	16,283	58,745	52,808	3,551	31,484	28,598
1887.....	78,928	49,435	17,903	61,068	54,798	3,824	41,448	38,522
1888.....	91,914	54,517	20,160	68,589	60,916	4,503	59,970	48,959
1889.....	102,530	61,120	22,986	78,553	70,230	4,941	71,556	59,210
1890.....	114,558	66,004	25,063	92,710	83,239	5,393	76,973	65,820
1891.....	120,032	69,869	26,736	98,826	88,379	6,098	82,852	71,408
1892.....	124,283	71,451	27,672	104,469	93,444	6,521	85,502	74,697
1893.....	132,137	75,393	30,723	113,563	101,025	7,508	83,812	75,983
1894.....	136,111	78,132	32,387	111,532	98,616	7,295	94,306	83,792
1895.....	145,685	82,986	34,214	116,884	103,789	7,437	105,222	93,827
1896.....	155,810	89,323	37,120	122,254	108,542	7,938	120,769	107,857
1897.....	167,810	95,432	39,826	133,940	119,215	8,508	133,458	119,628
1898.....	180,503	102,447	42,793	142,891	128,057	9,087	147,776	132,552
1899.....	194,682	109,002	45,709	161,700	145,324	9,891	152,357	138,417
Zusam.	1,884,049	1,093,505	434,094	1,518,371	1,365,619	95,880		

Die eingeklammerten Zahlen in Spalte 3 und 4 beziehen sich auf das Ende des Rechnungsjahrs; in Spalte 5 und 6 deuten die Klammern an, dass die Zahlen nur angenähert richtig sind.

Knappschaftskassen.

RECHNUNGSJAHR	Durschnittliche Zahl der Mitglieder	Zahl der Erkrankungsfälle	Zahl der Krankheitstage	Bemerkungen
	Tausend Personen	Tausend Tage		
1	2	3	4	5
1885.....	(372)	152	2,563	
1886.....	(374)	162	2,681	Die eingeklammerten Zahlen beziehen sich auf das Ende des Jahres.
1887.....	(383)	156	2,478	
1888.....	(404)	161	2,587	
1889.....	(437)	170	2,727	In den 13 Jahren 1885 bis 1897 haben in runden Summen betragen die
1890.....	(459)	205	2,826	Einnahmen 130,057,000 M. darunter
1891.....	(482)	219	3,150	Beiträge der Arbeitnehmer, 70,433,000 M.
1892.....	(480)	221	3,649	" " Arbeitgeber, 55,551,000 M.
1893.....	466	243	3,921	
1894.....	473	227	3,694	Ausgaben 113,671,000 M. darunter
				Krankheitskosten, . . 107,956,000 M.
1895.....	480	240	3,832	Verwaltungskosten, . . 4,270,000 M.
1896.....	497	238	3,854	
1897.....	526	256	4,063	Das Vermögen betrug Ende 1897, 12,995,000 M.
Zusam.	....	2,650	42,025	

TABELLE B.—Unfallversicherung.

RECHNUNGS-JAHR	Zahl der		Zahl der Versicherten im Jahresdurchschnitt bei den				Entschädigte Unfälle		Von 1000 Verletzungen hatten zur Folge			
	Berufsgenossenschaften	Ausführungsbehörden	gewerblichen Berufsgenossenschaften	landwirtschaftlichen Berufsgenossenschaften	Versicherungsanstalten	Ausführungsbehörden	als Bestand aus den Vorjahren übernommen	im Rechnungsjahr hinzugekommen	Tod	dauernde Erwerbsunfähigkeit		vorübergehende Erwerbsunfähigkeit
										völlige	teilweise	
			Tausend Personen									
1	2	3	4	5	6	7	8	9	10	11	12	13
1885	57	83	2,986	Nach den Volkszählungen ist anzunehmen, dass die Zahl der Versicherten betragen haben wird im Jahre 1888 (dem ersten der landwirtschaftlichen Unfallversicherung) rund 5½, in den Jahren 1889 und 1890 rund je 8, dann bis 1895 je 12 und seitdem je 11 Millionen Personen.	Unbekannt.	265	.....	268	....	...	...	...
1886	62	47	3,570			252	177	10,540	268	46	388	297
1887	62	48	3,862			260	7,914	17,102	201	41	463	295
1888	86	178	4,321			446	20,556	21,236	185	39	491	285
1889	112	285	4,743			543	35,392	31,449	175	33	498	293
1890	112	316	4,987			604	58,213	42,038	150	28	521	301
1891	112	352	5,093			632	87,949	51,209	130	24	532	314
1892	112	348	5,078			647	123,439	55,654	112	24	544	321
1893	112	372	5,169			660	159,746	62,729	107	21	515	357
1894	112	385	5,244			658	198,114	69 619	95	20	507	378
1895	112	393	5,409			691	242,841	75,527	89	19	501	391
1896	112	401	5,734			681	288,282	86,403	84	16	499	401
1897	113	404	6,043			716	338,533	92,326	80	16	510	394
1898	113	409	6,317			740	388,622	98,023	81	12	493	414
1899	113	416	6,659			756	437,854	106,036	77	12	489	422
1900	113	425	6,929			775	487,235	107,654	80	13	480	427
1901	113	478	6,884			794	536,485	117,336	73	12	468	447
Zusammen	....	....	.....	.....	.....	....	.....	1,045,149	....	...	...	...

TABELLE B.—Unfallversicherung.—Fortsetzung.

RECHNUNGS-JAHR	Einnahmen			Ausgaben				Vermögen	
	Insgesamt	Darunter Aufwendungen der		Insgesamt	Darunter für			Insgesamt	Darunter Reservefonds
		privaten Unternehmer	Ausführungs-behörden		Entschädigunden		Verwaltung		
					Insgesamt	Heilverfahren			
	Tausend Mark								
	14	15	16	17	18	19	20	21	22
1885	1,004	999	5	1,004	20	.....	984	.....	.....
1886	13,086	12,662	212	5,116	1,915	117	3,200	7,970	5,463
1887	20,656	19,598	575	9,797	5,933	326	3,864	18,829	15,721
1888	28,780	27,241	980	14,440	9,692	468	4,748	33,169	28,459
1889	36,911	34,321	1,433	20,171	14,489	631	5,682	49,909	42,175
1890	42,528	38,797	1,923	26,624	20,351	819	6,272	65,813	56,131
1891	51,542	46,621	2,428	33,582	26,471	1,026	7,111	83,773	71,068
1892	56,350	50,404	2,958	40,021	32,395	1,195	7,626	100,102	85,949
1893	62,112	55,050	3,521	46,630	38,279	1,254	8,352	115,584	100,892
1894	68,268	60,062	4,013	53,722	44,501	1,334	9,221	130,130	114,118
1895	73,765	64,225	4,542	60,498	50,442	1,317	10,056	143,397	125,538
1896	78,848	68,508	5,064	68,392	57,654	1,462	10,738	153,853	134,492
1897	79,983	68,715	5,675	75,985	64,591	1,621	11,394	157,851	136,142
1898	87,381	75,073	6,307	83,732	71,733	1,702	11,999	161,500	137,325
1899	95,870	82,882	6,861	92,076	79,284	1,866	12,792	165,293	139,098
1900	105,453	91,784	7,454	100,877	87,352	2,031	13,525	169,870	141,179
1901	126,718	111,992	8,238	113,991	99,301	2,303	14,690	182,597	151,849
Zusammen	1,029,254	908,922	62,189	846,657	704,404	19,471	142,254	.....	.....

TABELLE C.—Invalidenversicherung.

RECHNUNGSJAHR	Bewilligungen von Renten						Bewilligungen von Beitragserstattungen					
	Invalidenrenten		Krankenrenten		Altersrenten		bei Heiratsfällen		bei Unfällen		bei Todesfällen	
	Zahl	Durchschnittlicher Jahresbetrag M.	Zahl	Durchschnittlicher Jahresbetrag M.	Zahl	Durchschnittlicher Jahresbetrag M.	Zahl	Durchschnittlicher Betrag M.	Zahl	Durchschnittlicher Betrag M.	Zahl	Durchschnittlicher Betrag M.
1	2	3	4	5	6	7	8	9	10	11	12	13
1891	31	113.49	.....	.....	132,926	124.00	.....	.....	.....	.....	.....	.....
1892	17,784	114.91	.....	.....	42,128	127.95	.....	.....	.....	.....	.....	.....
1893	35,177	118.35	.....	.....	31,083	130.12	.....	.....	.....	.....	.....	.....
1894	47,385	121.72	.....	.....	33,871	126.26	.....	.....	.....	.....	.....	.....
1895	55,983	124.73	.....	.....	30,144	132.54	8,245	21.78	.....	.....	2,271	29.21
1896	64,450	127.45	.....	.....	25,953	134.23	63,444	23.74	.....	.....	16,766	31.59
1897	75,746	129.51	.....	.....	22,320	136.75	99,805	26.23	.....	.....	22,537	35.90
1898	84,781	131.72	.....	.....	19,525	139.09	121,977	28.62	.....	.....	25,811	40.39
1899	96,665	132.40	.....	.....	17,320	142.62	135,097	30.52	.....	.....	30,367	44.85
1900	125,821	142.04	6,677	147.73	19,867	145.59	156,188	31.79	234	47.37	34,127	49.09
1901	130,510	146.32	7,632	151.72	14,849	150.43	158,111	32.95	360	53.01	32,258	54.50
Zusammen	734,333	.....	14,309	.....	389,986	.....	742,867	.....	594	.....	164,137	.....

TABELLE C.—Invalidenversicherung. Fortsetzung.

RECHNUNGSJAHR	Einnahmen		Ausgaben								Vermögen am Ende des Rechnungsjahres	Reichszuschuss
	Insgesamt*	Darunter Beiträge	Insgesamt*	Darunter Entschädigungen						Darunter Verwaltungskosten		
				Insgesamt*	Invalidenrenten*	Krankenrenten*	Altersrenten*	Beitragserstattungen*	Heilverfahren			
	Tausend Mark											
	14	15	16	17	18	19	20	21	22	23	24	25
1891	100,818	93,972	19,199	15,300	.....	.....	15,299	.....	.....	3,838	81,619	6,050
1892	108,594	95,643	27,232	22,396	1,339	.....	21,025	.....	32	4,777	162,981	9,041
1893	115,016	96,909	33,065	28,021	5,207	.....	22,706	.....	108	4,952	244,932	11,337
1894	124,102	100,036	40,204	34,816	10,032	.....	24,420	.....	365	5,267	328,831	13,923
1895	133,058	102,721	48,744	42,681	15,333	.....	26,497	219	632	5,889	413,145	16,933
1896	144,225	109,136	58,086	51,322	20,845	.....	27,327	1,975	1,176	6,420	499,284	19,232
1897	153,042	112,812	67,126	59,894	27,061	.....	27,556	3,391	1,886	6,879	585,200	21,837
1898	163,564	117,952	76,852	68,940	34,363	.....	27,450	4,497	2,630	7,672	671,912	24,401
1899	178,373	127,263	87,623	78,657	42,368	.....	26,826	5,446	4,016	8,580	762,662	27,108
1900	187,070	128,770	103,973	92,729	53,573	651	26,224	6,617	5,578	11,244	845,759	30,762
1901	199,525	134,814	116,122	105,271	65,022	1,300	24,656	6,925	7,131	10,851	929,162	33,871
Zusammen.....	1,607,387	1,220,028	678,136	600,026	275,144	1,951	269,984	29,071	23,553	76,369	.....	214,495

* Einschliesslich Reichszuschuss (vergl. letzte Spalte).

ABSTRACT.

THE DEVELOPMENT OF THE GERMAN WORKINGMEN'S INSURANCE.

By Dr. Hugo Meyer.

Contents: (1) Since the report to the London Congress, the laws governing the insurance of working men in Germany have been somewhat altered and a new report with statistic material seems desirable. (2) The insurance has grown mainly by the increase in the number of persons compelled to be insured and entitled to insurance, rather than by the introduction of new branches of insurance, the principal insurances being for sickness, accident, disablement for work (see No. 13). In the near future a general insurance of survivors is to be introduced. A union of these various branches of insurance could not be effected.

Insurance Against Sickness: (3) More than 23,000 sick clubs are now concerned in the insurance against sickness. (4) They defray the total cost of treatment during the first 13 weeks (to be increased to 26 weeks in the near future), and if the sickness results in inability to work, they pay in addition a sick benefit amounting to at least 50 per cent. of the wages. Moreover, the organized societies (unions) are compelled to pay death benefits and a benefit for lying-in women for 4 weeks (to be increased to 6 weeks). (5) Larger payments are permissible and are often granted. (6) Number of cases and days of sickness. (7) The expenses are defrayed by the dues, one-third of which are borne by the employers and two-thirds by the employees. A maximum is fixed for dues in all compulsory insurance. (8) The reserve fund is regulated according to the average yearly expenditures. (9) Business and financial reports about insurance against sickness.

Accident Insurance: (10) This is carried on by 66 trade unions and 48 agricultural associations. Fourteen insurance companies are also connected with the trade unions, and a large number of executive authorities are concerned with the accident insurance of persons in municipal, provincial, or State employ. (11) Payments begin fourteen weeks after the accident, and, in case of bodily injury, all expenses connected with the treatment are defrayed and a certain percentage of the yearly wages, varying with the degree of disablement, is paid throughout the entire period of inability to work. In case of death of the insured, the money is paid as a death benefit and as an annuity to the family of the deceased. The payment of the capital may take the place of the payment of small annuities. Foreigners may receive one payment, equal to three times the annuity. (12) All payments are made through the mails, without charge. (13) The payment of greater sums is permissible, and the insurance company may also insist upon certain precautionary measures to guard against accidents. This has appreciably diminished the number of grave accidents. The trade unions have recently secured the right to insure employers against liability and to found for their members subsidy and pension funds, which are however not compulsory. (14) Statistics on the frequency of accidents. (15) The cost of accident insurance is borne by the employers only. (16) Assessments are levied in order to raise the amount to be added to the reserve fund and the money to defray the yearly expenditures.

Regulation of the amount to be added to the reserve fund. (17) Guarantees. (18) The system of assessments has been discarded by the miners' union and by the insurance companies. (19) The present value of accident payments depending on the age of the insured and duration of payment. (20) Premiums for insurance companies. (21) Business and financial report of accident insurance.

Insurance of Invalids: (22) Thirty-one insurance companies, each controlling a limited territory, and nine railroad or miners' associations are concerned with invalid insurance. Persons subject to insurance, according to sex and age; the five classes according to wages. (23) The payment of invalid insurance presupposes the payment of dues. Any person continually insured for a period of 500 weeks, whose capacity for work has been reduced to one-third, or who has been sick for 26 successive weeks, is entitled, after a vacancy of 200 weeks, to invalid insurance for the rest of the time during which he is unable to work. After paying dues for 1200 weeks, any person insured, over seventy years of age, is entitled to an old-age benefit. Calculation of the amount to be paid. Foreigners may receive one payment equivalent to three times the amount of the annuity. Female beneficiaries, after their marriage, as well as beneficiaries who are permanently disabled by an accident during work are entitled to payment of one-half of the sum of the dues paid; in the same manner, the widow, or the full

orphans of a person insured may claim one-half of the dues paid for the deceased, provided that no annuity has been granted for same. All claims cease upon the return of the dues. All annuities and returned dues are paid through the mails free of charge. Operating fund of the post-office. Accounts with the institutes of insurance. (25) The insurance companies may institute a course of treatment, and may have the claimant consigned to a home for invalids. Other minor payments. (26) The expenses arising from invalid insurance are defrayed by the empire, by the employers, and by the employees. (27) With the old law, the dues were to cover the value of the capital and the sum paid for annuities and benefits during each period, in addition to current expenses; under the new law they shall also cover the value of all claims as far as they concern the insurance companies, i.e., they shall constitute premiums in the ordinary sense. The amount of weekly dues has remained the same, but the dues for wage class V. have been added, and the reserve fund has been dropped. (28) Technical investigations for invalid insurance; value of capital of annuities, depending on the age of the insured and the duration of payment. (29) Guarantees. (30) Business and financial report of invalid insurances. (31) Retrospect over the work done by the entire Workingmen's Insurance.

RÉSUMÉ.

LE DÉVELOPPEMENT DE L'ASSURANCE DES OUVRIERS EN ALLEMAGNE.

Par Dr. Hugo Meyer.

Contenu.—1. Depuis le rapport du Congrès de Londres les lois Allemandes de l'assurance des ouvriers ont été modifiées en quelque manière, et il semble qu'on a besoin d'un nouveau rapport avec quelque matière statistique. 2. L'assurance cependant ne s'est accrue à peu près que par l'étendue de la périphérie des individus dont c'est le droit ou le devoir d'être assurés,—moins par l'introduction de nouvelles branches; après comme avant c'est l'assurance contre la maladie, l'assurance contre l'accident et l'assurance des invalides qu'il nous faut prendre en considération (No. 13). Sous peu l'assurance générale des survivants aura été préparée. On n'a pas encore atteint l'union de toutes ces branches.

L'assurance contre la maladie.—3. Plus de 23 milliers de Caisses prennent soin à l'heure actuelle de l'assurance contre la maladie. 4. Il leur faut rien moins que dans les premières treize (sous peu 26) semaines de la maladie faire les frais du traitement et payer une taxe (de moins de 50% de la paye) si par suite de la maladie; il est incapable de gagner sa vie outre cela il faut payer aux Caisses organisées les frais funéraires et une somme pour l'appui des accouchées pour quatre (sous peu six) semaines. 5. Des payements en plus sont admissibles et en fréquent usage. 6. Le nombre des cas et des jours de la maladie. 7. Les frais de cette assurance obligatoire sont couverts par des contributions, un tiers à la charge des employants, deux tiers à la charge des employés. On a fixé le maximum des contributions aux Caisses obligatoires. 8. Les fonds de réserve se règlent à l'égard de la moyenne des frais annuels. 9. Les résultats des rapports sur les affaires administratives et financières de l'assurance contre la maladie.

L'assurance contre l'accident.—10. Il y a 66 Associations de Fonction Industrielle et 48 Associations de Fonction agronomique pour conduire l'assurance contre l'accident; de plus quatorze compagnies d'assurance trouvent leur place au milieu des associations industrielles; un grand nombre d'autorités exécutives prennent soin de l'assurance contre l'accident des ouvriers dans les établissements publiques de l'état, des provinces et des communes. 11. Les prestations commencent avec la quatorzième semaine après l'accident et comprennent, en cas d'une lésion corporelle, les frais du traitement et une rente proportionnée aux salaires annuels, variante à l'égard de la gravité de la lésion, et payante durant le chômage; en cas de mort de l'assuré les frais funéraires et des rentes aux survivants. Le payement du capital peut racheter les petites rentes. En payant une fois pour toutes la triple rente la Caisse a le droit de désintéresser les étrangers. 12. Tous les payements se font par la poste sans frais. 13. Les Caisses ont le droit de percevoir en plus et de se prémunir en cas d'accidents; en conséquence desquelles les accidents plus graves ont diminué appréciablement. Les associations ont acquis récemment le droit d'assurer la responsabilité des employants

et de former des caisses auxiliaires et pensionnantes pour leurs membres; mais de telles caisses ne sont pas obligatoires. 14. Des statistiques de la fréquence des accidents. 15. Les frais de l'assurance contre l'accident sont à la seule charge des employants. 16. Les besoins annuels cotes les pour aux fonds de réserve sont prélevés comme les impôts. La régulation de la quantité à ajouter aux fonds de réserves. 17. Les garanties. 18. Les associations des mineurs et les compagnies d'assurance ont abandonné le système de cotes. 19. La valeur en capitaux des rentes, dépendant de l'âge de l'assuré et de la durée de la rente. 20. Les primes des compagnies d'assurance. 21. Les résultats des affaires administratives et financières de l'assurance contre l'accident.

L'assurance des invalides.—22. 31 compagnies d'assurance et 9 caisses de mineurs et des employés des chemins de fer se sont chargées de l'assurance des invalides. Les individus sujets à cette assurance à l'égard de l'âge et du sexe. Les cinq classes en vertu de la paye. 23. Les bénéfices de l'assurance des invalides présupposent l'acquittement des contributions. Toute personne assurée sans discontinuité pour une periode de 500 semaines, dont la capacité de travail est rèduit à un tiers on qui a été malade pendant 26 semaines consécutives mérite de droit apies une vacance de 200 semaines l'assurance d'invalide pour le restant du temps qu'il lui est impossible de travailler. La rente de vieillesse est due aux vieillards de plus de 70 ans après avoir été assurés plus de douze centaines de semaines. Le calcul de la hauteur des rentes. En payant la triple rente annuelle une fois pour toutes on peut désintéresser les étrangers. Les femmes qui se marient et les assurés qui deviennent invalides pour toujours à cause d'accident en fonction,—ont le droit de redemander la moitié des contributions acquittées par eux; c'est aussi le droit de la veuve ou des parfaits orphelins de l'assuré de redemander la moitié des contributions acquittées pour le défunt; —supposé qu'aucune rente n'est encore payée en vertu des contributions. Au moment de la restitution des impôts toutes les prétentions s'éteignent. 24. On paye les rentes et les retours par la poste sans frais. Fonds de caisse de la poste. Escompte avec les instituts d'assurance. 25. C'est aux instituts d'assurance d'aider à la guérison des assurés et des bénéficiers, ainsi que de les soigner dans un hôtel des invalides. Les autres prestations secondaires. 26. Les frais d'assurance des invalides sont faits par l'Empire, par les employants et par les assurés. Une rente est chargée à l'Empire, les primes sont chargées à moitié aux employants et aux employés. 27. Les contributions, en vertu de la loi ancienne, étaient destinées à couvrir non seulement les frais courants mais aussi la valeur en capitaux des rentes des instituts qui se formaient durant chacune période; mais à l'heure actuelle elles doivent suffire aussi pour la garantie de la valeur de toutes demandes légales aux instituts d'assurance, c'est-à-dire, c'est le système qu'on a adopté des primes régulières. Les contributions hebdomadaires n'ont pas été changées, mais on a ajouté la contribution pour la cinquième classe en vertu de la paye, et il n'y a plus de fonds de réserve. 28. Les enquêtes techniques quant à l'assurance des invalides. La valeur en capitaux des rentes des invalides, dépendante de l'âge du rentier et de la durée de la rente. 29. Les garanties. 30. Les résultats des affaires administratives et financières de l'assurance des invalides. 31. Revue de l'efficacité de l'assurance des ouvriers en général.

THE PROGRESS OF PROVIDENT INSTITUTIONS IN THE UNITED KINGDOM.

BY

E. W. Brabrook, C. B., V. P. S. S.,

Chief Registrar of Friendly Societies.

When I had the honour to be invited to contribute a paper on this subject to the International Congress of Actuaries, I had already accepted nomination to the office of President of the Section of Economic Science at the Southport meeting of the British Association, and had prepared an address on the same subject for delivery at that meeting. I therefore asked leave to offer some extracts from that address as my communication to the Congress. I have to thank Mr. Woods for his kindness in giving me permission to so deal with the matter.

For so small a country as the United Kingdom, I think I may claim that her organisations for the purposes of thrift have attained a very considerable development. The 2238 Building Societies in Great Britain and Ireland have 591,283 members and $310,389,210 funds (adopting the convenient equation that £1 sterling = $5) ; the 28,580 bodies registered under the Friendly Societies Act have 12,807,378 members and $216,162,500 funds; the 2175 co-operative societies have 1,929,628 members and $204,123,300 funds; the 676 trade unions have 1,598,809 members and $23,176,460 funds; the 51 workmen's compensation schemes have 133,604 members and $615,080 funds; the 271 Friends of Labour Loan Societies have 33,965 members and $1,339,400 funds; in the 13,919 post office and other savings banks there are 10,485,918 depositors and $1,080,225,450 invested; so that upon the whole in 47,845 thrift organisations with which the Registry of Friendly Societies has, in one form or other, to deal, there are 27,580,585 persons interested and $1,836,-031,400 of money engaged. (See diagram 1.) "These figures, however, possess no significance other than that they are very big. Many individuals are necessarily counted more than once, as belonging to more than one society in one class, or to more than one class of societies. Some portion of the funds of Friendly Societies is invested in savings banks, and therefore is counted twice over. Some of the co-operative societies, as, for example, the wholesale societies, have for capital the contributions of other societies, which thus are also counted twice over. On the other hand, the aggregate, large as it is, is necessarily defective. It includes only bodies which are brought into relation with the Registry of Friendly Societies in one or other of the functions exercised by that department. It does not include, therefore, many co-operative and other bodies which are registered under the Companies Act, nor the Industrial Assurance Companies which are regulated by the Assurance Companies Act, nor does it include the great body of Friendly Societies which are not registered at all. Among these shop clubs hold a prominent position, and these are very numerous. The Royal Commissioners of thirty years ago thought that the unregistered were then commensurate with the registered bodies; and as one result of the legislation which the Commissioners recommended has been to diminish the applications for registry made by such societies as are subjected by it to the necessity of a periodical valuation of assets and liabilities, there seems no reason to think that unregistered societies are relatively now any fewer than they were then.

"It would seem, then, that the figures we have cited are well within the mark, and that, used for the mere purpose of indicating the magnitude of the interests involved, they may be relied upon as not overestimating it. The observation just made leads to the question, why should there be so many unregistered societies? Why, indeed, should there be any unregistered societies? The National Conference of Friendly Societies, which consists wholly of registered bodies, has just passed a resolution recommending the enactment of a law that all societies should be compelled to register. Why not? I think it will not be difficult to find the real answer to these questions. It was given as long ago as 1825 by a Committee of the House of Commons in these wise words:—'It is only in consideration of advantages conferred by law that any restrictive interference can be justified with voluntary associations established for lawful and innocent purposes. It is for the individuals themselves to determine whether to adopt the provisions of the statute, which offers them at the same time regulation and privilege, or to remain perfectly unfettered by anything but their own will, and the common or more ancient law against fraud or embezzlement,' which common or more ancient law was strengthened in 1868 by the Act known as Russell Gurney's Act. 'For your Committee apprehend that although the Act of 1793 appears to begin by rendering lawful the institution of Friendly Societies, there neither was at that time nor is now any law or statute which deprives the King's subjects of the right of associating themselves for mutual support.'

"Upon this principle the Legislature has hitherto proceeded. Registration is voluntary. The subscriptions of the members are voluntary. The conditions of membership are such as the rules framed by the members themselves impose. They have full authority to alter those rules from time to time. Those conditions may, if the members so please, imply that the subscriptions are to be small and the benefits large. They may provide for investment of funds on any security they think fit so long as it is not personal security. They may provide for the periodical division of the funds so long as they make it clear that all claims existing at the time of division are first to be met. Up to this point the registered society and the unregistered are hardly distinguishable. What, then, are the obligations consequent upon registry? There is the making an annual return and the making a quinquennial valuation; but the action to be taken by the society upon the result of the valuation is wholly in the discretion of the members. The valuer may demonstrate beyond doubt that the society, in order to save itself from disaster, must increase the subscriptions of the members or diminish their benefits; but neither he nor the Registrar can enforce the recommendation. The society has its destinies wholly in its own hands. Then again the Act contains certain provisions for the protection of members. Individual members have the right to inspect the books of the society, to receive copies of its balance sheets and valuations, and so forth. A certain number of the members have the right to apply to the Registrar to appoint an inspector into the affairs of the society or to call a special meeting of the members. The inspector can only report—there is no action which the Registrar can take upon his report if the members disregard it. The special meeting will in no way differ from an ordinary meeting called by the society itself, except that it may choose its own chairman. The Registrar cannot in any way control its proceedings. Even these things he cannot do of his own motion without being set in action by a competent number of the members. If a society becomes insolvent, members may in like manner

apply to him to wind it up: he may see that a readjustment of contributions and benefits would set the society on its legs again, and may suspend his award of dissolution to enable the society to make that readjustment, but he can do no more. If the society refuse to make it, he has no option but at the end of the period of suspension to issue the award. Here again he may have the fullest knowledge that a society is hopelessly insolvent, yet he can do nothing unless a competent number of the members call in his aid. I confess that I think the Legislature might have gone further in this respect and conferred upon the Registrar, or at any rate upon some public authority, the power to deal compulsorily with cases of hopeless insolvency, and if necessary to appoint a receiver, as such cases are not infrequently complicated with fraud carried on in circumstances which make it difficult for a competent number of the members to join in an application to the Registrar. However that may be, taking the legislation as it stands, it embodies to the fullest extent the principle laid down by the Committee of 1825.

"The surrender of freedom which a Friendly Society is called upon to make in order to obtain the privileges of registry, which are not inconsiderable, is therefore exceedingly small; yet it is sufficient, as we have seen, to keep out of the registry office a large number of societies. It seems not improbable, looking back on the history of legislation on the subject—and the observation is a curious one—that unwillingness to register has been closely connected with actuarial considerations. Thus, in the year 1819, an Act was passed which provided, among other things, that the justices should not confirm any tables or rules connected with calculation until they had been approved by two persons at least known to be professional actuaries or persons skilled in calculation; but that was repealed in 1829. Again, in 1846 an Act was passed which provided, among other things, that every registered society should make a quinquennial valuation; but that was repealed in 1850 before a single quinquennial period had arrived. It was not till a quarter of a century after 1850 that this most salutary provision again found a place in the statute book, and the experience of the last twenty-eight years has shown how valuable it is, and how much it is to be regretted that the Act of 1846 was not allowed to remain in force. Again, the Act of 1850 provided for the discrimination of societies into two classes: those which were simply registered and those which were certified. These latter were to obtain the certificate of a qualified actuary that their tables of contribution were sufficient for the benefits they proposed to insure. Very few certified societies were established, and that Act was repealed in 1855. The experience of the Legislature has not been favourable therefore to endeavours to impose upon Friendly Societies by Act of Parliament conditions of actuarial soundness.

"If, however, the voluntary principle is abandoned, and all societies are to be compelled to register, it is obvious that there must be a recurrence to the policy of imposing such conditions. At present a registered society may be as unsound as it pleases, and so may an unregistered society. Unless registry is to imply something more than that, there can be no reason for any compulsion to register. For what does compulsion mean? It means prosecuting, fining, and sending to prison all persons who associate themselves together for the lawful and innocent purpose of mutual support in sickness and adversity without registration; and that, obviously, cannot reasonably be done unless abstinence from registration is shown to be a moral offence; that is to say, unless the conditions of registration are such that a registered society shall be necessarily a good

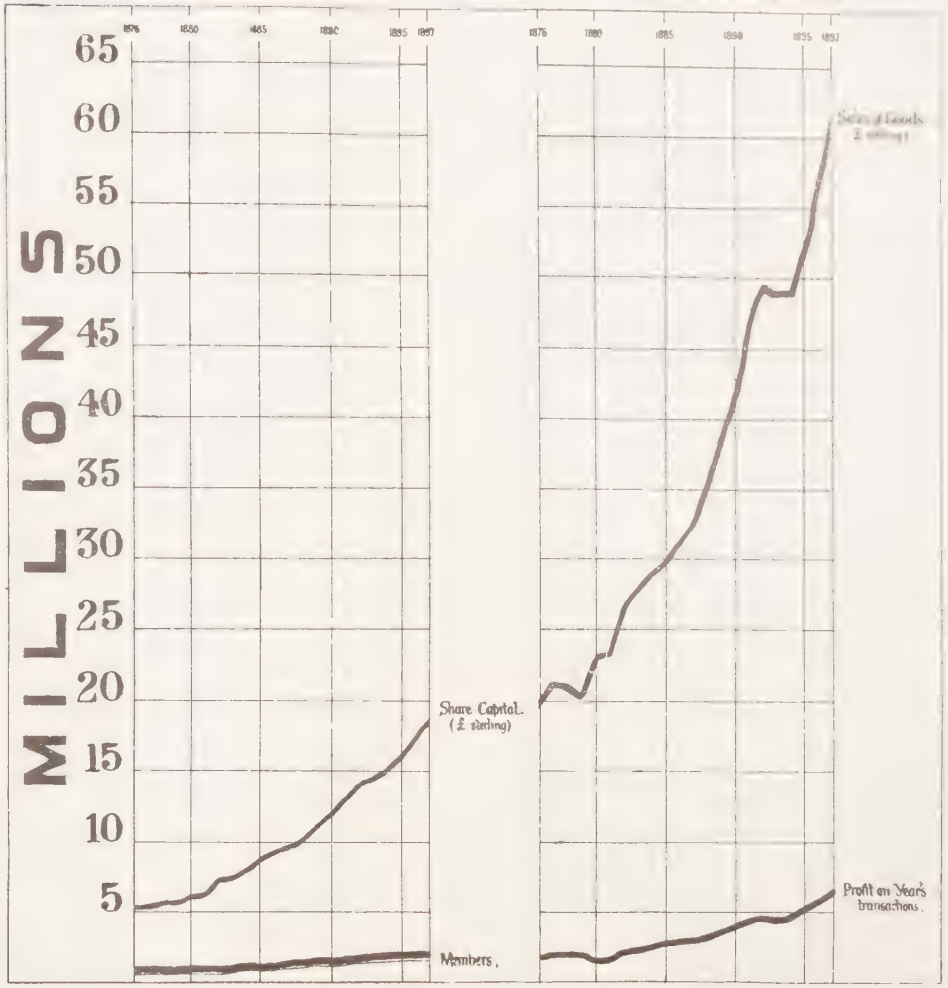
CO:OPERATIVE SOCIETIES 1876 - 1897.

REGISTERED UNDER THE INDUSTRIAL AND PROVIDENT SOCIETIES ACTS

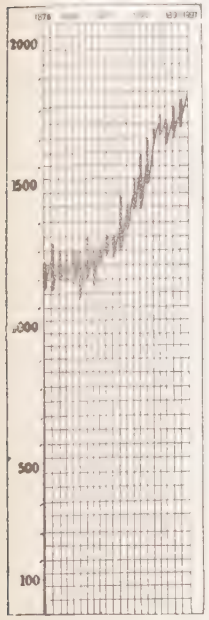
GREAT BRITAIN AND IRELAND

INDUSTRIES AND TRADES.

(& CO-SOCIETIES MAINLY PRODUCTIVE)



Number of Societies carrying on Industries and Trades, and Number of Returns each year from 1876 to 1897



The upper points show the Societies in existence at the end of the Year and the lower points the Returns received.

SUMMARY OF ANNUAL RETURNS AT 31ST DECEMBER 1897.

	ENGLAND AND WALES.	SCOTLAND.	IRELAND.	TOTAL.
INDUSTRIES AND TRADES:				
Number of Societies on Register.	1 399	322	196	1,917
Number of Returns received viz..				
Productive Societies. . .	119	3	45	167
Distributive Societies.	672	128	27	827
Productive and Distributive Societies	528	187	29	744
Number of Members. . . .	1,257,552	253,578	10,616	1,521,746
	£	£	£	£
Sales of Goods.	48.070.030	15,086,379	495.854	61,650,263
Productive Expenses. . . .	1,308,376	453,184	23,705	1.785,245
Distributive Expenses. . . .	2,262,005	539,557	9,979	2,811.521
Total Assets.	23,079,286	5.597,220	86. 621	28.763.127
BUSINESSES:				
Number of Societies on Register.	140	11	4	155
Number of Returns received, viz.				
Financial Societies.	37	4	1	42
Working Mens Clubs. . . .	57	2	—	59
Other Societies.	34	5	2	41
Number of Members.	42,319	2,071	478	44,868
	£	£	£	£
Receipts	1,773,849	119.144	9.767	1.902.760
Total Assets:	356,308	101,001	1.061	458.365
LAND SOCIETIES:				
Number of Societies on Register.	115	16	1	132
Number of Returns received .	104	16	1	121
Number of Members.	11,144	3.291	11	14,446
	£	£	£	£
Receipts	131,739	14,281	5,369	151 389
Total Assets	691.547	162,042	5.319	858 908

NOTE. Nearly all the Societies not making Returns are Societies which had not existed for a complete year, or which are in course of dissolution.

William Tate

Chief Registrar.

one, and an unregistered society necessarily a bad one. We must begin, at any rate, by devising model tables and insisting that every society shall adopt them. Are they not ready to hand? Did not my lamented colleague, Mr. Sutton, prepare a Blue Book of 1350 pages full of them? That is true; but it is also true that in the brief introductory remarks which he addressed to me at the beginning of that report he observed, with great force, that the adoption of sufficient rates of contribution is not enough to secure the soundness of a society. Those rates are derived from the average experience of all classes of societies—some exercising careful supervision over claims for sick pay, others lax in their management—and it is upon care in the management, rather than upon sufficiency of rates, that the success of a Friendly Society mainly depends. If the members administer the affairs of their society with the same rigorous parsimony and watch over the claims for sick-pay with the same vigilance which a poor and prudent man is compelled to exercise in the administration of his own household affairs, the society will be more than solvent, even though they do not pay as high a contribution as the model tables exact. If they neglect these precautions, there is no model table which will rescue them from ultimate insolvency. In Mr. Sutton's happy phrase, it is the personal equation of the members and of their medical adviser that tells the most on the prosperity or the failure of a society. Your compulsory registration will impose unfair conditions on the well-managed societies, and will do nothing to prevent the inevitable collapse of those which are badly managed. Registration tells for a great deal while it is voluntary and free; but if you make it compulsory, and add to it conditions that you suppose will tend to soundness, you will inevitably do more harm than good. It is, of course, of vital importance that adequate rates of contribution should be charged for the benefits proposed to be ensured; but if these are imposed by authority, the management of the societies must also be undertaken by the same authority. It is a curious observation, which has been borne out by experience, that in poor societies the claims for sickness are relatively less than in rich ones.

"M. Bertillon, the eminent French statistician, has shrewdly remarked: 'The truth is, that Friendly Societies, when they grant sick-pay, attach less weight to the text of their rules than to the state of their funds. If the society is rich, it grants relief more freely than if it is poor. Thence and thence only it comes that the great English societies, which are often very old and generally rich, give more days' pay than the French societies, for example, which are bound to a rigorous economy.' Without necessarily assenting to all that M. Bertillon says, it is easy to see that if the State were unwise enough to say that such and such rates would be sufficient, it would encourage laxity of management, and accept a responsibility that does not belong to it.

"I may now proceed to show that the present voluntary system, unscientific as it may be supposed to be, works very well on the whole. Its most useful feature is the valuation, for a society which disregards the lessons of one valuation finds itself pulled up sharply by the results of a second. A deficiency that is frankly faced by an increase of contributions, a reduction of benefits, or a levy, or by all three together, will probably not only disappear, but be succeeded by a surplus; but a deficiency that is disregarded not only grows at compound interest, but increases by the continued operation of the causes which produced it. It is to be remembered that a valuation deficiency or surplus, as the case may be, in a Friendly Society is always hypothetical. It means this in

the case of deficiency—if you go on as you are going and do not modify your contracts you will ultimately be in a deficiency of which this is the present value. In the case of surplus it means—if you go on as you are going and do not allow your prosperity to tempt you to recklessness you will probably have enough to meet all your engagements, and this much over together with its improvements at interest.

"When Friendly Societies are considered in their economic aspect, they appear to be an excellent application of the principle of insurance to the wants of the industrial community. Sickness may come upon a working man at any time, and may disable him from work for an indefinite period. In such an event, if he had nothing to rely upon but his own savings accumulated while he was at work, they would before long be exhausted, and he would be left in distress. By combining with a number of others who are exposed to the same risk, he can fall back upon the contributions to the common fund which have been made by those who have escaped sickness. It is an essential part of every contract of insurance that the contributions of all who are exposed to an equal contingent risk are equal; but the benefits are only derivable by those of the number in whose experience the contingent risk becomes actual, and they receive more than they have paid, the deficiency being made up out of the contributions of those who have escaped the contingent risk.

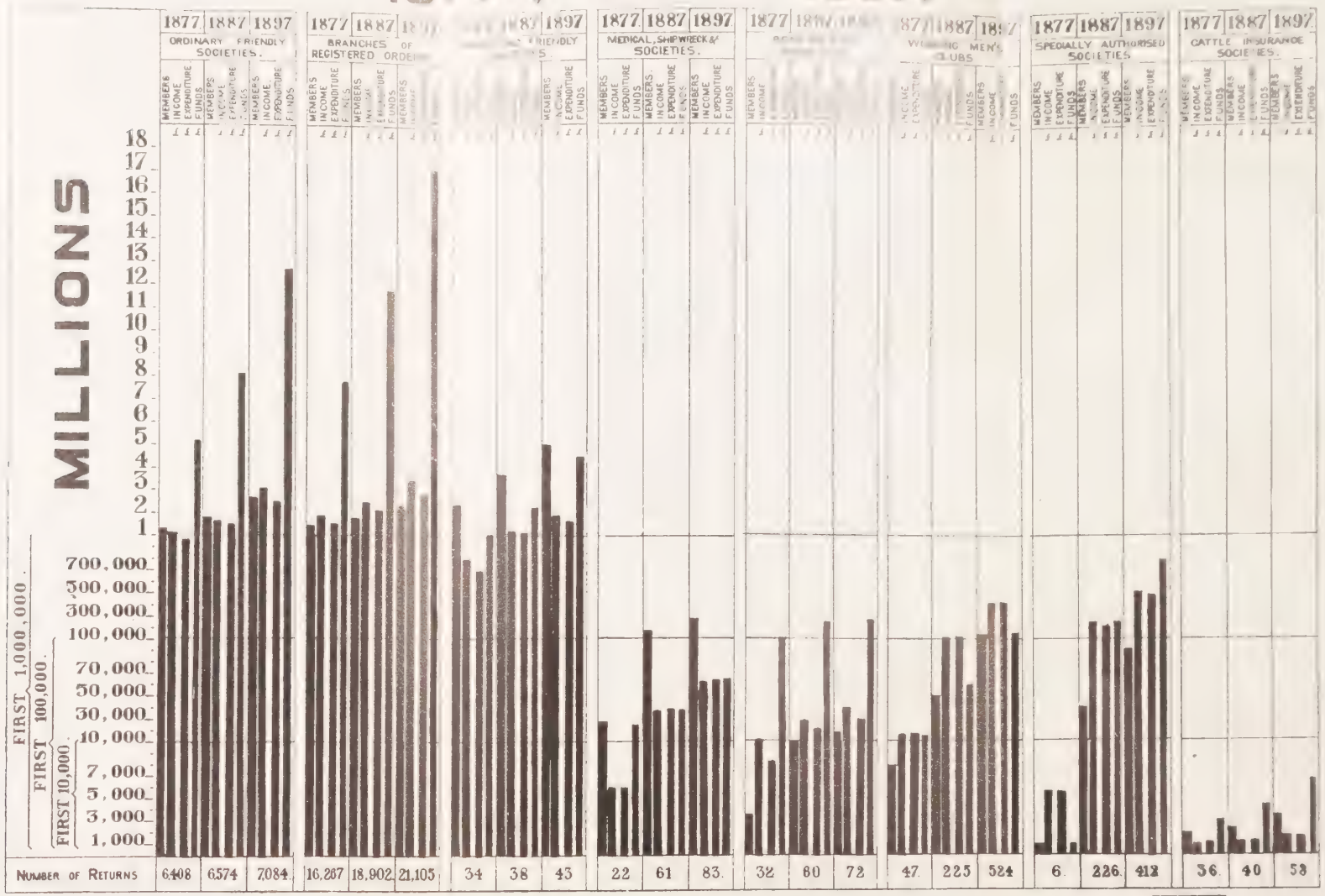
"This really seems too elementary a proposition to be worth stating, but it is the fact that the principle of insurance is so little understood that many members of Friendly Societies look upon themselves as having performed an altruistic and charitable act in joining a society when they have been fortunate enough not to make claims upon it through sickness. Several intelligent witnesses before Lord Rothschild's Committee on Old-age Pensions, representing large and well-managed societies, actually urged upon the Committee that the members of Friendly Societies were more deserving of old-age pensions than other people because they subscribed for the benefit of others and not of themselves.

"It appears to me that the proper relation of the Friendly Societies to the Poor Law is a negative one. The main object of the societies should be, as indeed it is, to keep their members independent of the Poor Law. They have done so with great success. The returns which have more than once been presented to Parliament of persons receiving relief who are or have been members of Friendly Societies have frequently been shown to be untrustworthy. The number of actual members of such societies who seek relief is small absolutely, and still smaller relatively to the population. It was therefore not without regret that I observed the passing of an Act in 1894 which empowered Boards of Guardians to grant relief out of the poor rates to members of Friendly Societies, and, if they thought fit, to exclude from consideration of the amount of relief to be granted the amount received by the applicant from his Friendly Society. That Act has just been followed in the natural course of events by a bill for taking away from the Guardians their discretion in the matter, and requiring them to grant full relief to the applicant in addition to the weekly sum, not exceeding five shillings, which he receives from his Friendly Society. In other words, they are to provide a pauper who is a member of a Friendly Society with a free income of five shillings a week more than they would grant as adequate relief to a pauper who was not a member of a Friendly Society, however deserving in other respects that pauper might be. Poor-law relief, instead of being a painful and deplorable necessity, is elevated into a reward of merit in the one case, in which that merit has been displayed by joining a society.

REGISTERED FRIENDLY AND BENEFIT SOCIETIES.

GREAT BRITAIN AND IRELAND

1877, 1887 AND 1897.



Chief Registrar.

A kind of old-age pension is provided for the member, but instead of being an old-age pension without the taint of pauperism, it is a condition of obtaining it that the man must become a pauper. This seems to me to be topsy-turvy legislation. The very bodies whose aim and proud boast it should be that their members never are paupers have been contented to claim and obtain for their members the rank of privileged paupers.

"The discussion of the subject of old-age pensions which has now been proceeding for the last twelve or thirteen years has had one good effect in bringing under the consideration of the Friendly Societies the practical methods by which they can obtain these pensions for themselves. The impression that some day and somehow the State would provide pensions for everybody, or at least for everybody who is thrifty, has had a bad effect; but the wiser members of the societies have seen that it would be a good thing to substitute for their present plan of continuing sick-pay to the end of life a plan of insuring a certain annuity after a given age. For this purpose they have had to overcome a natural reluctance on the part of the members to lock up their savings in the purchase of deferred annuities, and they have done so with some success, several thousands of persons having agreed to subscribe for these benefits. It is anticipated that the report of Mr. Alfred Watson on his investigations into the sickness experience of the Manchester Unity of Oddfellows will add force to this movement by showing how great a burden old-age sickness at present is, and how slight an additional sacrifice would secure a deferred annuity. It need hardly be said that it is more desirable that the members generally should do this for themselves than that they should get the State to do it for them.

"Registered Friendly Societies are becoming more popular and more wealthy under the present system. The number of returns from societies and branches increased from 23,998 on December 31, 1891, to 26,431 on December 31, 1899, and 27,005 on December 31, 1901; the number of members from 4,203,601 to 5,217,261 in eight years, and to 5,479,882 in ten years; the amount of funds from $113,475,295 or $27 per member to $163,759,345 or $31 per member after eight years, and to $177,863,700 or $32 per member after ten years. It is necessary to observe that some of the numerical increase is due to greater completeness in the later returns. The increase in ratio is not affected by this. It may be worth noting that, on the average, the proportion of members under 50 years of age to those above that age is as 81 to 19; and that of the total aggregate receipts per annum, 73 per cent. goes in benefits, 11 per cent. in management, and 16 per cent. is added to capital. The average annual contribution per member is $5.

"Up to this point I have referred merely to the Friendly Society of the ordinary type, the sick club and burial fund. Societies of the collecting group, while registered under the Friendly Societies Act, are also regulated by a separate Act, and it is convenient therefore to consider them apart. They insure burial money only. They are only 46 in number, having increased from 43 in 1891. They have as many as 6,678,005 members, an increase from 5,922,615 in 1899 and 3,875,215 in 1891; but among these each individual above the age of one year in every family is counted separately, and the majority, therefore, are young children. Their funds are $29,865,520 or $4.48 per member, having increased from $26,038,430 or $4.40 per member since 1899, and from $13,566,070 or $3.50 per member since 1891. These societies therefore show progress like the others. (See diagram 2.)

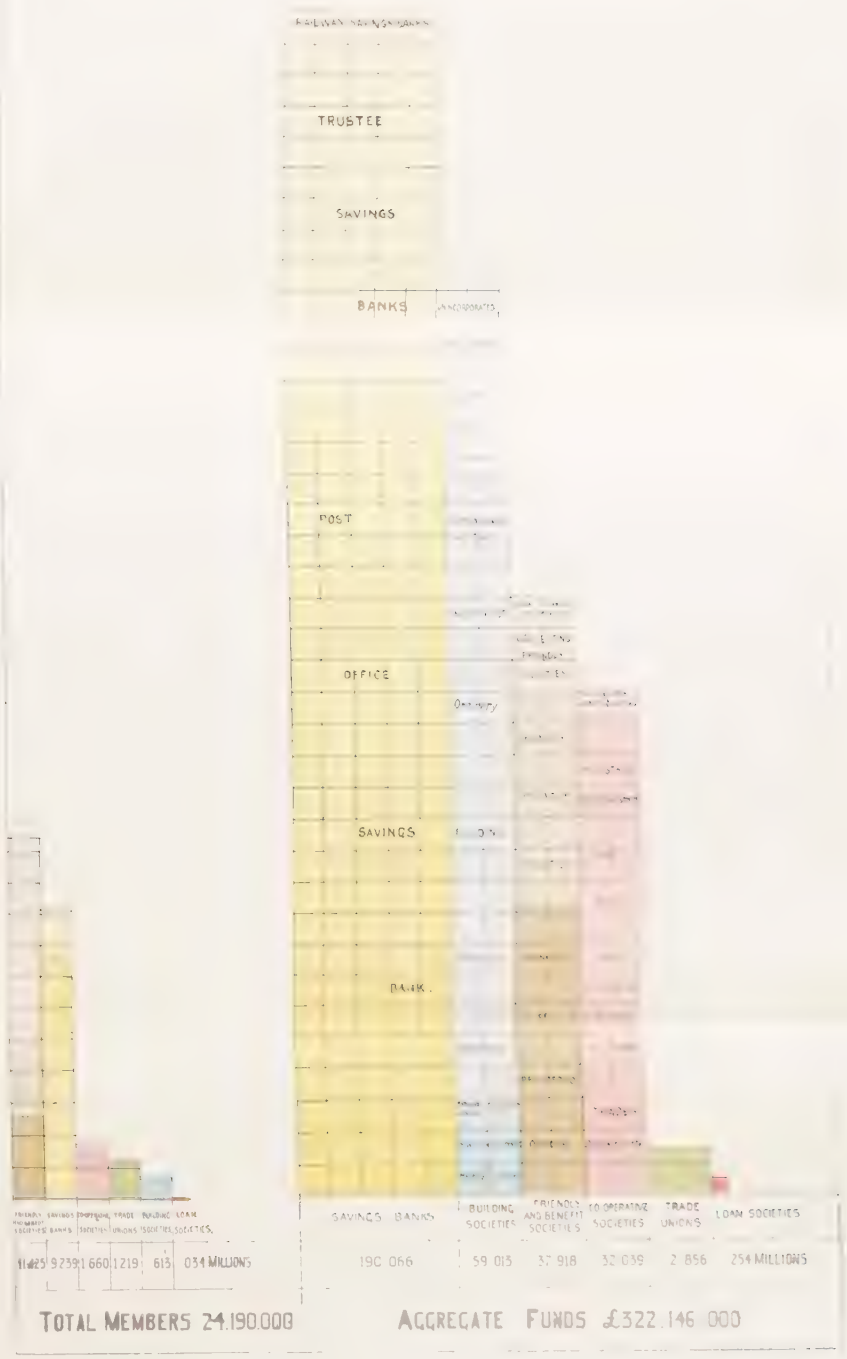
"The collecting societies do a similar business to that of the Indus-

trial Assurance Companies, of which the Prudential is the type. Their ostensible reason for existence is to answer that instinct of human nature which makes even the poorest desire that the burial of the dead should be attended with some degree of ceremony; but strong as that instinct may be, it does not prompt the poor to seek out the office of the society and pay their premiums there. They have to be solicited by canvassers and waited upon by an army of collectors at their own homes; and the maintenance of this army and the general cost of management absorb nearly half the contributions, so that the poor insurer pays double the net price for his insurance. There is reason to believe, moreover, that these societies are largely used for speculative insurances by persons who have no real insurable interest in the lives insured. So long ago as 1774 an Act was passed for the purpose of checking this sort of gambling in human life; but as it only makes the policy void, the insurer takes the risk of the society repudiating the contract, knowing that its doing so would discredit it and spoil its business.

"A number of other classes of societies are capable of being registered under the Friendly Societies Act, such as cattle insurance societies, benevolent societies, working men's clubs, and societies for any purpose the registry of which the Treasury may specially authorise. The formation of cattle insurance societies on a large scale was contemplated by an Act of 1866, when the cattle plague was at its height; but in practice only small pig clubs and similar societies in Lincolnshire and the neighbouring counties have been registered under this head. Benevolent societies are defined as societies for any benevolent or charitable purpose, and might therefore comprise all the charitable institutions of the United Kingdom, but in fact the registered benevolent societies are few. Working men's clubs—frequently called working men's clubs and institutes—were first brought under the operation of the Friendly Societies Act of that day by Sir George Grey as Secretary of State in 1864, and were then societies for purposes of social intercourse, mutual helpfulness, mental and moral improvement, and rational recreation. They are still so defined by law; what they are in fact has been revealed by the provisions of the Licensing Act, 1902, as to the registration of clubs. Rules have been submitted to the Registry Office, and we have been advised that we have no discretion to refuse to register them as rules for carrying out the excellent purposes just defined, providing for the supply of intoxicating liquors to members and their friends at hours when the ordinary licensed houses are compulsorily closed, for keeping the club open every night till midnight, and on nights when there are balls till six o'clock in the morning, and for other incitements to intemperance. I hope that it will not be long before an enactment is passed that the registry of a club under the Licensing Act shall vacate its registry under the Friendly Societies Act. Such clubs have nothing to do with thrift or with insurance; they are rather instruments of extravagance, improvidence, and dissipation.

"Some of the specially authorised purposes are also wide of the mark, which upon the *ejusdem generis* rule should, I think, be pointed with strictness in the direction of provident insurance; but there has always been a desire liberally to extend the benefits of the Friendly Societies Act with a view to the encouragement of societies having praiseworthy objects which for want of means or some other reason are not registered as companies. The large majority of specially authorised societies are Loan Societies, and though these may in some cases be fairly good investments for those who lend, they are of doubtful benefit to those

Chart showing the Number of Members and Amount of Funds of Registered Provident Societies and of Certified and Post Office Savings Banks in Great Britain and Ireland at 31st December 1898.



who borrow. An exception must be made to this statement with respect to the Agricultural Credit Societies, many of which have been established in Ireland by the exertions of Mr. Plunkett, and have been pecuniarily assisted by the Congested Districts Board. It is a feature of these societies that they not only lend money to the small farmer, but see that he spends it on improvements to his farm; and also that there is no division of profit among the members.

"The returns from all societies under the Friendly Societies Act other than Friendly Societies proper increased from 557 in 1891 to 1308 in 1899, and 1449 in 1901; the number of members from 241,446 in 1891 to 610,254 in 1899, and 649,491 in 1901; and the amount of funds from $2,974,040 in 1891 to $7,640,320 in 1899, and $8,433,280 in 1901. Here, again, great allowance has to be made for the want of completeness of the returns of the earliest date.

"Allied to Friendly Societies, but having special regulations under other Acts, are shop clubs and workmen's compensation schemes. In a vast number of large industrial establishments the men have their own sick club, sometimes assisted by the employer; and in a few the employer makes it a condition of employment that every workman shall join the club. Where this is done it is now enacted, not only that the club shall comply with the requirements of the Friendly Societies Act as to registry, but also with other conditions of more stringency. As yet only a few clubs have been able to satisfy all the requirements of the Shop Clubs Act, 1902. The workmen's compensation schemes provide an alternative to the general scheme of compensation to injured workmen contained in the Act of 1897, and have enabled the employers and workmen in several large industries to enter into mutual arrangements by which the workman gains an equivalent to the compensation which the Act would give him, and enters into partnership with the employer for obtaining other benefits. According to the returns, these schemes have hitherto resulted very favourably to the workmen, and it seems a pity there are not more of them.

"The sentiment of which I have spoken—that it is desirable to extend the benefits of the Friendly Societies Acts to societies for good objects, even though those objects may not be purposes of provident insurance—is expressed in the statute of 1834, which allowed of 'any purpose which is not illegal,' and in that of 1846, in which the definition of a Friendly Society was made to include the frugal investment of the savings of the members for better enabling them to purchase food, firing, clothes, or other necessaries, or the tools, implements, or materials of their trade or calling, or to provide for the education of their children or kindred. Under these Acts the Rochdale Equitable Pioneers and a number of other Co-operative Societies were registered, and in 1852 an Act was passed specially dealing with these bodies under the name of Industrial and Provident Societies. They were made corporate bodies by an Act of 1862, and are now regulated by the Industrial and Provident Societies Act, 1893. The societies that may be registered under that Act are societies for carrying on any industries, businesses, or trades specified in or authorised by their rules, whether wholesale or retail, and including dealings of any description with land.

"This definition indicates pretty clearly the manner in which Co-operative Societies have worked out their own evolution. The expression 'Industries' denotes the productive form of society, a form which has always embodied the ideal of co-operation when the combined labour of the members should be engaged in the production of commodities. The

expression 'Businesses' indicates the recognition of the Legislature that Co-operative Societies ought to cover a wider range than was allowed by the words 'labour, trade, or handicraft' in the Act of 1876, and includes banking, assurance, and the like. The expression 'Trades' denotes the distributive form of society, a form in which co-operation has gained its greatest successes. The permission to carry on these functions 'wholesale' as well as retail points to the system of super-association, or co-operation between societies, which has attained phenomenal proportions in the co-operative wholesale societies of Manchester and of Glasgow, and exists in a smaller degree of development in other societies. The authorising 'dealings of any description with land' relates not merely to a considerable number of land societies, but is also an indication of the great extent to which societies for other purposes have applied their profits and some of their capital to the excellent work of providing homes for their members. It is also to be observed that many societies are both distributive and productive.

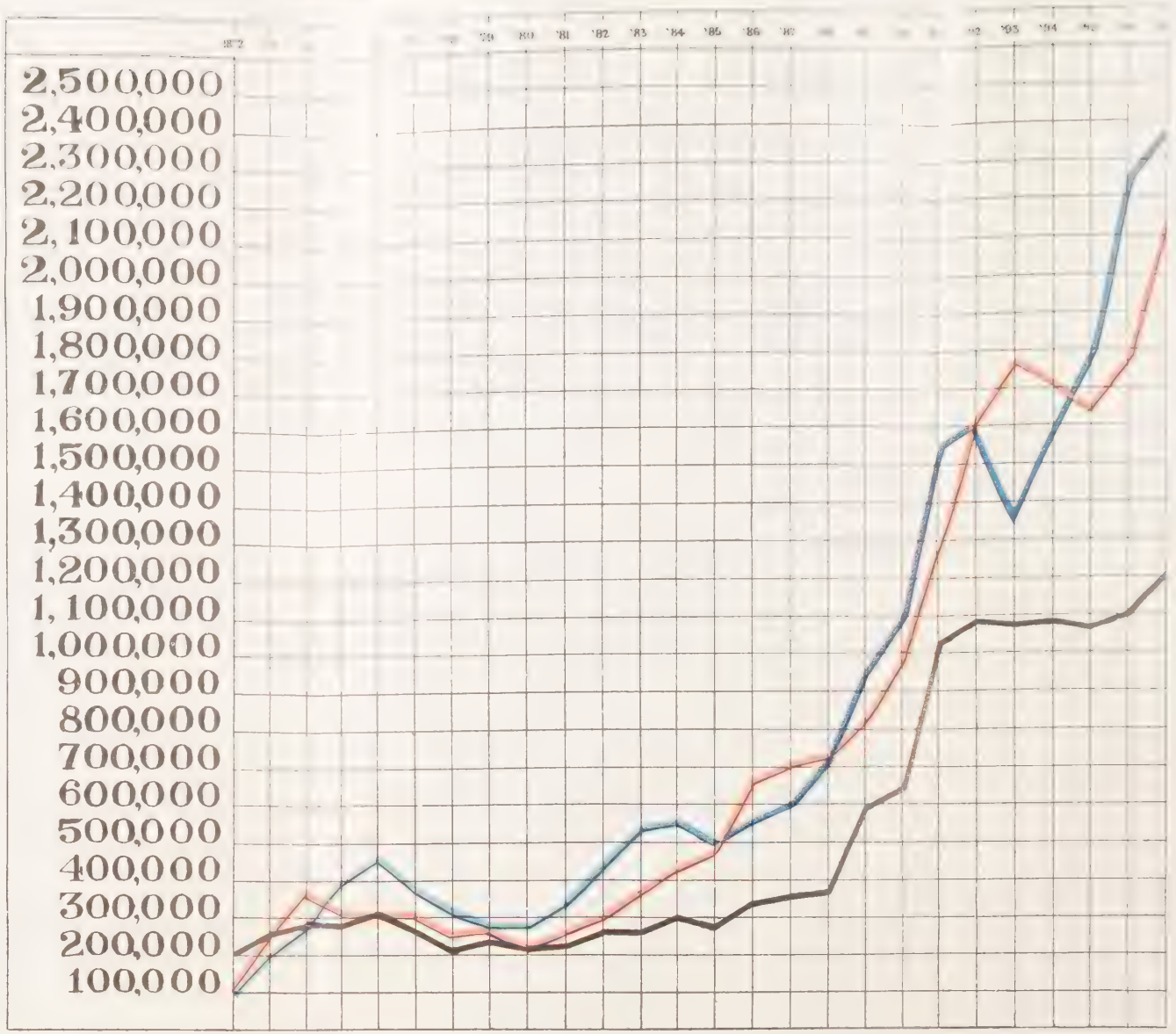
"What have these societies done for their members? They have reduced the price of the necessaries of life and have thus enabled persons of limited means to enjoy some of its luxuries; they have provided a remunerative investment for small savings; they have done much to put an end to the practice of giving and taking long credit; they have done as much as in them lies to ensure the purity of commodities; they have discountenanced (though, perhaps, not with all the success that might have been hoped for) the practice of taking commissions and commercial bribery generally; they have raised the standard of comfort and have helped many members to obtain the coveted possession of a house of their own; they have devoted a share of their profits to educational purposes with excellent results. Some of the productive societies, by the practice of giving bonus to labour, have improved the economic position of the workman and contributed to the efficiency of his work. They have, on the other hand, not been so successful in realising some of the aspirations of the founders of co-operation as they hoped to be; commercial failure has not been unknown among them; losses have occurred, though the simple organisation of the societies has made it easy to deal with them by adjustments of the capital account; they have not always had the best of managers, and have sometimes failed to give their confidence where it was deserved, and given it where it was not. In many places they have had to contend with opposition from the traders to whose business and profits their success was unfavourable. Taking all things into consideration, the progress they have made is surprising.

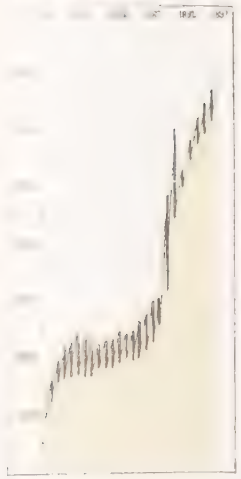
"Comparing the returns for the United Kingdom for the years ending December 31, 1891, and December 31, 1901, the increase in number of societies was from 1597 to 2175; in number of members from 1,136,907 to 1,929,628; in amount of funds from $82,725,690 to $204,123,300. (See Diagram 3.)

"It has been observed that the Co-operative Societies are largely undertaking the work of providing homes for their members; and to that it may be added that the Friendly Societies are more and more tending to adopt the practice of lending money to members on mortgage as one of the most remunerative forms of investment open to them. The Building Societies, which were established for that purpose only, are still carrying on the same work, and the combined operation of all three ought to produce a material effect on the prosperity and well-being of the industrial population. Building Societies alone advance as much as $45,000,000 a year on mortgage.

REGISTERED TRADE UNIONS 1872 - 1897.

GREAT BRITAIN AND IRELAND





The Upper Points show the Unions in existence at the end of the Year and the lower Points the Returns received

"Building Societies have passed through a crisis. The incorporated societies reached their highest point of prosperity in 1887, when their capital amounted to $270,000,000; by 1894 it had fallen to below $215,000,000. The Building Societies Act, 1894, required of societies a fuller disclosure of the real state of their affairs than had previously been called for. The result was to show that, apart from the special scandal caused by the fraudulent proceedings of one particular Society, there were hitherto undisclosed elements of weakness in the management of Building Societies that justified the withdrawal of the public confidence that had been reposed in them. The properties in possession before the passing of the Act of 1894 were not less than $37,500,000; they are now less than $15,000,000.

"This points to the fact that the early prosperity of Building Societies had led to the establishment of more societies than the public demand called for, with the consequences that societies competed against each other, and that in the stress of competition and the anxiety to do business they accepted unsatisfactory securities, which must lead to loss upon realisation. From this point of view the effect of the Act of 1894 has been wholly salutary. Year after year the societies have reduced their properties in possession. The evils which they dreaded from the disclosure of the facts have not arisen. At this day it may be said that the societies as a whole have regained the position they held in public confidence, for the members now know the worst. They know, too, that where the blight of properties in possession still infests the business the managers are resolutely endeavouring to diminish its effect.

"I need hardly repeat what has so often been said of the economic value of a sound Building Society. The man who by its means gets a stake in the country mounts many steps on the social ladder. When he has paid off the mortgage on his own dwelling-house, and so liberated himself from the obligation to pay principal and interest, either in the form of repayment annuity or of rent, what is to prevent him from buying in the same manner, as an investment, another house with the income thus set free, and so on?

"There are still sixty-eight Building Societies which remain under the operation of the Act of 1836, having been established before 1856, and not having availed themselves of the option of taking upon themselves the responsibilities and the privileges of the Acts of 1874 and subsequent years. One society (the Birkbeck) stands by itself, as, although its business as a Building Society is considerable—the new advances granted on mortgage last year having been for $600,000—its main operations are those of a deposit bank, and it keeps the far greater part of its funds in investments on liquid securities. The other societies are pursuing the even tenor of their way, just as they have done for the last fifty years, and show on the average an increase of business from year to year. But the great body of Building Societies are those which are incorporated under the Acts of 1874 to 1894, exceeding 2000 in number. They have so far recovered from the effects of the depression that their assets are now $240,000,000 (see diagram 4), being midway between the low-water mark of 1894 and the high-water mark of 1887. That and the fact that they have in about seven years reduced their properties in possession by about 60 per cent. leads to the inference that they are now, speaking generally, in a fairly healthy condition, and that many years of usefulness are still to be expected for them.

"The Friendly Societies Registry also registers and receives returns from trades unions. These useful and necessary bodies have, I think,

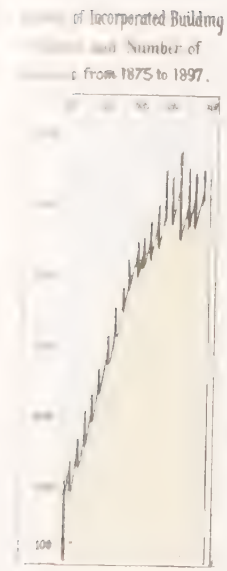
been rather cruelly treated, not only in past days, but also in more recent times. Without going back to the bad old times when six poor agricultural labourers were sentenced to seven years' transportation for forming a trade union, or even to the time when they were refused the protection of the law for the funds they had accumulated, because, forsooth, they were for an illegal purpose, it will be sufficient to mark the unexpected change that has been worked in their position since the Act of 1871 purported to render them legal. Registry under that Act authorised the trustees of a trade union to hold land not exceeding one acre, vested the property of the union in them, authorised them to sue and be sued on behalf of the union, limited their liability, made the treasurers and officers accountable to them or to the members, and enabled them to take summary proceedings against any person misapplying their funds. But it did not create the unions corporate bodies, and did not enable any Court to entertain legal proceedings for enforcing their contracts with their members, recovering contributions due from a member, or recovering from the union benefits due to a member or other person, or for enforcing any agreement between one trade union and another, even where any such contracts or agreements were secured by bond. It was commonly thought that the effect of all this would be that the unions, having none of the privileges of incorporation, would escape the liabilities which affect corporate bodies; and so much was this the general opinion that the Duke of Devonshire and other members of the Royal Commission on Labour made a minority report in which they suggested that the law in this respect should be altered.

"It has recently been determined that, although unions are not corporate bodies, they are responsible for the acts of their agents as much as if they were. I do not presume to question the propriety of this decision as a matter of law, nor even to say that it is a decision which is contrary to equity; but only to point out that its result upon the individual member of a trade union, who gave no mandate to its agents to do any illegal or injurious act, but handed over his savings to the trustees of the union, relying on the stringency of the provisions of the Act as to misapplication of funds, is very serious and was unexpected. The contributions of workmen to their trade union represent an amount of self-sacrifice and self-denial that is not readily gauged or measured or understood by persons in easier circumstances of life. Their object, which is primarily to provide the sinews of war in any conflict that may be necessary to secure their material welfare, and secondarily to provide sick and funeral and pension and out-of-work benefits against the ordinary ills of life, is one that ought to appeal most strongly to the sympathies of the economist. If it is the fact that trades unions make mistakes, as most people do, then mistakes will be much fewer and less mischievous when full legislative recognition and protection are afforded them than they were under the old *régime* of suspicion and repression.

"Loan Societies under the Act of 1840 are societies for lending sums of money not exceeding $75 to the industrious classes upon terms of a deduction of interest at the time of granting the loan and a corresponding weekly repayment fixed to commence at such a time that the rate of interest earned by the society shall be about 12 per cent. per annum; another instance of the experience which always faces the poor man that he has to pay for any small accommodation he wants a higher relative price than the man has who wants more. These societies are of two types: the Friends of Labour Loan Societies, existing mainly in the metropolis, having two classes of members, investing and borrowing, but

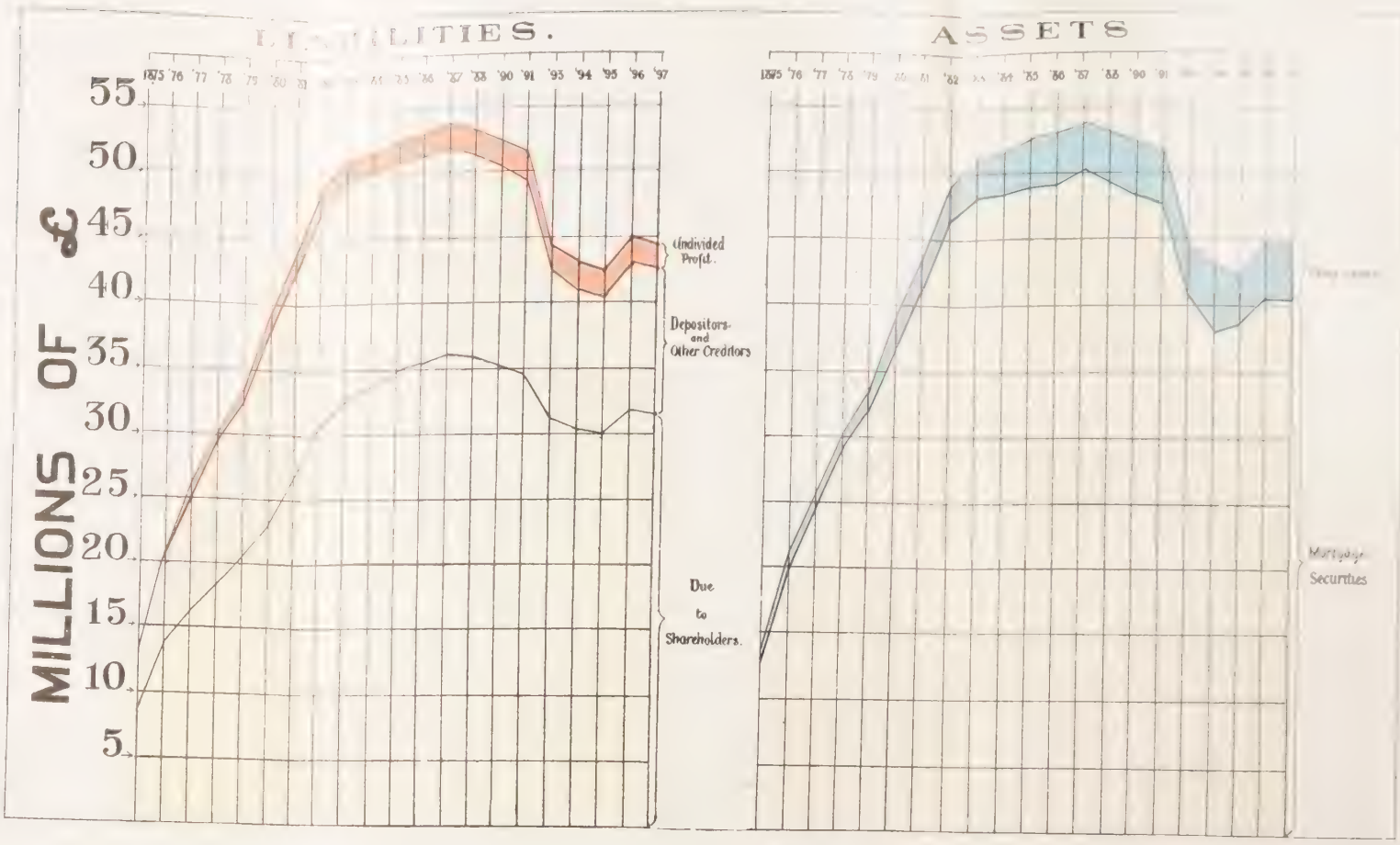
INCORPORATED BUILDING SOCIETIES 1875-1897.

GREAT BRITAIN AND IRELAND

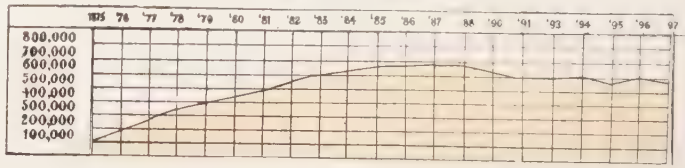


of Incorporated Building
and Number of
from 1875 to 1897.

The upper Points show the Societies in existence at the end of the Year, and the lower Points the Returns received.



NUMBER OF MEMBERS.



NOTE The increase in the figures in the earlier Years is largely due to the addition to the list of Incorporated Societies of Societies which had for many years previously existed as Unincorporated Societies. At 31st December 1897. 81 Unincorporated Societies were in existence 78 furnished Returns showing 41,036 Members £5,139,858 Due to Shareholders £8,807,719 Depositors and Other Creditors £647,587 Undivided Profit: £3,651,754 Mortgage Securities and £9,543,410. Other Assets.

William H. Tate

Chief Registrar.

limiting the subscriptions of the one class to the $75, which is the statutory limit of the loans to the other class; and what may be called the proprietary loan societies, existing mainly in Yorkshire, making their loans to non-members, and consisting of a small number of persons who contribute the whole of the capital, the holding of each proprietor sometimes amounting to several hundreds of pounds.

"The Registry of Friendly Societies has for one of its functions that of granting to societies which are exclusively for purposes of science, literature, and the fine arts certificates exempting them from local rating. Though there can be no question that these certificates are of great value to many excellent institutions, such as public libraries, picture galleries, museums, and scientific and learned societies, which would find the liability to pay rates, in these days when rates have increased and are increasing so largely, a serious deduction from the scanty means at their command for maintaining their useful operations, yet I have very grave doubts whether on economic grounds any such exemption from rates is capable of being defended. The benevolent people who subscribe to maintain these buildings for the public good increase the burden upon the small ratepayer to the extent to which they fail to contribute their share. The Act of 1843 has more than once been scheduled in Bills for repealing exemptions from rating, but those Bills have not been passed, and the Act is still in force.

"There only remains to consider the case of Savings Banks, which are brought in connection with the Registry of Friendly Societies by the Acts which confer upon that office exclusive and final jurisdiction in the settlement of disputes, and effectually oust the jurisdiction of the Courts of Law. Under these Acts many thousands of disputes have been settled by my predecessors, my colleagues, and myself, and at the present time an average of three appointments every week during the busy time of the year has to be made to hear the parties. We see much of the seamy side of life in these cases—many family and other quarrels of a sordid character are brought to light—and it has been noted as a curious fact that persons guilty of fraud or embezzlement seem frequently, but most unwisely, to select the Savings Bank as the securest receptacle for their ill-gotten gains. On the other hand, many pathetic and touching instances of thrift and self-sacrifice have been brought under our notice, and much evidence has been accumulated as to the great value to the poor of these excellent institutions. As compared with the several self-governing bodies to which I have already called attention, the Savings Bank may not unfairly be described as the elementary form of organisation for thrift. The depositor entrusts his money to it for mere safe custody and accumulation, and has no voice in the application of it or control over its managers. All he asks is that he may run no risk of losing it. Savings Banks are of three classes: the 230 Trustee Savings Banks of the old type which still remain, and have to their credit an undiminished amount of funds, though there were at one time more than twice as many banks; the Post Office Savings Bank, which is one of the many monuments still extant to the financial genius of Mr. Gladstone, and not less to the administrative skill of the public servants who settled the lines upon which it works, and which has increased the savings of the people more than three-fold by bringing almost to every man's door the opportunity of making deposits. Thirdly, there are the Railway Savings Banks, which have collected from the workmen employed and from their families $23,735,100. It is right to observe that they give a rate of interest exceeding by about 1 per cent. that given by the Trustee

and Post Office Savings Banks. It is also to be borne in mind that the deposits in Savings Banks are not drawn wholly from the industrial population, but that many, especially women and children, belonging to other classes make use of the banks. Indeed, the Postmaster-General, in an approximate estimate made some years ago, calculated that women and children constituted 56 per cent. of the whole number of depositors. School Savings Banks and Penny Savings Banks are also to be mentioned as feeders of the ordinary Savings Banks, and as greatly increasing the opportunities of saving afforded to the young, and instilling into them valuable lessons of thrift.

"Such is the story the department to which I belong has to tell of the free and spontaneous efforts of the industrial population to better their condition by means of thrift and economy. It is, I venture to think, one which speaks well for the general body of that population and has great promise for the future of the country. In times of depression, as well as in times of prosperity, the gradual increase of the funds of these various bodies has been maintained; the members have not been compelled by the one, nor tempted by the other, to relax their efforts and their sacrifices."

I append to this paper a series of five diagrams, prepared by Mr. W. H. Tozer, F.S.S., the statistical officer of the department.

RÉSUMÉ.

PROGRÈS DES INSTITUTIONS DE PRÉVOYANCE DANS LE ROYAUME-UNI.

Par E. W. Brabrook.

Le progrès des organisations pour la prospérité est un sujet de grandes sommes et qui touche les intérêts de beaucoup d'hommes. Les rôles des soi-disant sociétés amicales (friendly societies) comprennent 28,000 corps enrôlés à l'égard de l'ordonnance pour ces Sociétés Amicales,—Associations Corporatives, Chambres Syndicales, Sociétés des habitations à bon marché, Maisons de prêts, et,—pour ajuster des différends,—Caisses d'épargne. Dans tous ces établissements 27 millions y sont intéressés, et à peu près 1836 millions de dollars y sont placés. Mais ça ne comprend pas les associations nombreuses non enrôlées. Les raisons qui empêchent ces associations de l'enrôlement et de ses avantages, apparaissent par l'administration visibles. Il semble qu'il ne soit pas désiré d'enforcer l'enrôlement par ordonnance, ou de prescrire des régulations typiques et impératives à ces sociétés; car la prospérité de ces associations est bien plus dépendante des soins pris par l'administration que d'une organisation solide. Le système actuel fonctionne très bien. En comparant les nombres d'aujourd'hui et ceux de dix ans auparavant, le nombre des membres est bien accrû, de même que l'état de fortune par tête de ces membres. Cela ne se dit pas seulement des sociétés amicales (friendly societies) régulières, les caisses mortuaires ou bénéficiaires, mais aussi des organisations qui ne recueillent que des contributions irrégulières pour rembourser seulement les frais d'enterrement.

Les Associations Coopératives sont des fabriquants, des industriels, et des marchands de tout genre, en biens-fonds, et des banquiers, y inclus les courtiers. C'est pourquoi quelques associations détaillantes forment une association nouvelle pour le grand commerce; et ce sont les associations pour le commerce en gros qui en effet sont très profitables. Ces associations coopératives offrent de grands advantages à leurs membres. Il y a en des faillites, toutefois inévitables, quand des individus s'associent pour le commerce; mais ces faillites ont été peu fréquentes, toute proportion gardée, et les ordonnances pour les associations coopératives ont été suffisantes pour égaliser les pertes par des contributions réparties parmi les membres, sans qu'il ait fallu invoquer le secours des Cours de justice.

Les Sociétés des habitations à bon marché ne bâtissent pas elles-mêmes,

mais elles offrent des prêts aux membres pour le bâtiment ou l'achat des maisons. Les prêts de ce genre montaient l'an née passée jusqu'à 45 millions de dollars. Elles viennent de passer une crise produite par des actions frauduleuses d'une association, par lesquelles la confiance dans de telles associations a été ébranlée. Cette affaire a découvert la faiblesse de l'organisation de toutes ces associations, qui se voient obligées,—parceque leurs débiteurs manquent de restituer les prêts,—à acquérir beaucoup de biens-fonds. La perte dans ces biens-fonds est à peu près inévitable; et c'est avec grande joie qu'on observe une diminution continuelle des biens-fonds des associations depuis 1894, en vertu d'une ordonnance qui force les associations à publier de temps en temps le total de leurs biens-fonds.

Quant aux Caisses d'épargne, les autorités compétentes pour l'enrôlement des sociétés amicales (friendly societies) sont chargées uniquement pour une période de 75 ans d'ajustement des différends. On connait à l'heure actuelle par une longue expérience que ces institutions prodiguent des bienfaits aux pauvres.

KURZE NOTIZ.

DIE FORTSCHRITTE DER VERSORGUNGS-ANSTALTEN IN DEM VEREINIGTEN KÖNIGREICH.

Von E. W. Brabrook.

Die Fortschritte der Wohlfahrtseinrichtungen ist ein Thema, welches mit grossen Zahlen zu thun hat und welches eine bedeutende Anzahl von Menschen berührt. Das Verzeichnis der sogenannten Wohlfahrtsgesellschaften (friendly societies) umfasst 28,000 Korporationen, welche nach Massgabe des Gesetzes, über die Wohlfahrtsgesellschaften ihre Eintragung bewirkt haben. Erwerbsvereine, Gewerksgenossenschaften, Baugesellschaften, Darlehnskassen und,—bezüglich der Beilegung von Streitigkeiten,—auch Sparbanken, an all' diesen Anstalten sind 27 Millionen Menschen beteiligt und 1836 Millionen Dollars sind in ihnen angelegt; hierin sind aber die nicht eingetragenen Gesellschaften nicht mitinbegriffen, so zahlreich sie auch sind. Die Gründe, welche manche Gesellschaften davon abhalten, der Vorteile der Eintragung teilhaftig zu werden, liegen augenscheinlich in Fragen der Verwaltung. Es scheint unerwünscht zu sein, die Eintragung zu einer zwangsweisen zu machen, oder Regulationen von der Regierung aufgestellt zu erhalten, welchen dann die Gesellschaften sich zu fügen hätten; denn das Gedeihen solcher Gesellschaften hängt viel mehr von ihrer guten Verwaltung als von der Gediegenheit ihrer Statuten ab; das jetzige System arbeitet vorzüglich. Eine Vergleichung der Zahlen von heute mit denen von vor zehn Jahren zeigt eine gewaltige Zunahme der Mitglieder und des Vermögens an sich sowohl, als auf den Kopf der Mitglieder. Und zwar gilt dies nicht allein für die gewöhnlichen Wohlfahrtsgesellschaften (friendly societies), — die Sterbe- oder Krankenkassen, — sondern auch für die auf unregelmässigen Beiträgen ihrer Mitglieder beruhenden Gesellschaften, welche lediglich ein gewisses Begräbnisgeld gewähren.

Erwerbsgenossenschaften betreiben Fabrikation, Handels- und sonstige Geschäfte, — einschliesslich jedweden Handels mit Grundeigentum und Bankgeschäften, — und zwar en gros und en détail. Zu dem Ende verbinden sich eine Anzahl von Kleinhandelsgesellschaften zu einer Gesellschaft für den Grossbetrieb, und der von solchen Grossbetriebsgesellschaften erzielte Gewinn ist sehr beträchtlich. Erwerbsgenossenschaften bieten ihren Mitgliedern grosse Vorteile. Bankerotte sind vorgekommen, — wie das ja überall unvermeidlich ist, wo sich Individuen zum Handelsbetrieb associieren, — aber solche Bankerotte waren verhältnismässig selten, und die Bestimmungen der Gesetze über die Erwerbs- und Wirtschaftsgenossenschaften haben ausgereicht, um durch angemessene Beiträge jedes einzelnen Mitgliedes, ohne dass gerichtliche Hilfe erforderlich gewesen wäre, etwaige Verluste wett zu machen.

Baugenossenschaften sind solche Genossenschaften, welche nicht selber bauen, sondern ihren Mitgliedern Darlehen zum Bau oder Ankauf eines Hauses gewähren. Die solcher Art gewährten Darlehen betrugen im vergangenen Jahre 45 Millionen Dollars. Diese Baugenossenschaften haben kürzlich eine Krisis durchgemacht, infolge betrügerischer Manipulationen einer solchen Genossenschaft, wodurch das Vertrauen in alle derartigen Vereine erschüttert worden ist. Dies führte zur Aufdeckung eines schwachen Punktes in der Verwaltung aller

solcher Genossenschaften, nämlich des Umstandes, dass sie infolge der Verfehlung ihrer Darlehnsnehmer, die gegebenen Darlehen zurückzuzahlen, in die Notwendigkeit versetzt werden, eine grosse Masse von Grundeigentum zu erwerben. Der Verlust an solchem Grundeigentum ist unvermeidlich; und es muss daher mit Freuden begrüsst werden, dass seit 1894, nach Erlass eines Gesetzes, welches die Baugenossenschaften zwingt, den Betrag ihres Grundeigentums öffentlich bekannt zu geben, dieser Betrag sich bedeutend vermehrt hat.

Was die *Sparbanken* betrifft, so steht der Behörde, bei welcher die Eintragung der Wohlfahrtsgenossenschaften (friendly societies) und ihrer Vorläufer zu erfolgen hat, für 75 Jahre die ausschliessliche Befugnis zur Schlichtung von Streitigkeiten zu. Die Erfahrung in dieser Hinsicht hat gelehrt, welch grosse Wohltat für die Armen diese vorzüglichen Einrichtungen sind.

ON THE GROWTH OF LIFE INSURANCE, ASSESSMENT INSURANCE, PURE ENDOWMENT BUSINESS AND ANNUITY BUSINESS.

By James Chatham, F.I.A., F.F.A.,

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Life Insurance in the United Kingdom of Great Britain and Ireland may be said to have commenced in the beginning of the eighteenth century, and was at first conducted on the assessment principle. The "Society of Assurance for Widows and Orphans" was founded in 1699, and was the first life assurance association formed in this country. When full, it was to consist of 2000 members, who were to contribute five shillings each towards every death that occurred among members of over six months' standing, the sum assured being thus £500, contingent upon all the members paying up. The entrance fee was 5/-, and persons at the time of admission were to appear to be in a good state of health, and their age not to exceed 50. It seems to have disappeared about 12 years after its formation.

Various other associations were formed, but the next of importance was the Amicable Society founded in 1706. It also was on the assessment plan, but it differed from its predecessors in respect that the annual contribution was fixed at £6:4/-, and the sum payable at death varied according to the number dying in any year. The same stipulation as to good health was made as in the Society mentioned above, but the ages at entry were ultimately fixed to be between 12 and 45. In 1720 it had an accumulated fund of about £50,000, and had latterly divided £10,000 per annum among the representatives of the members dying. Two other offices were founded in that year, namely, the London Assurance Corporation and the Royal Exchange Assurance Corporation, both of them proprietary companies. The policies issued at first by these corporations were for one year only, the rate charged being generally 5 per cent. Mr. Walford estimates that in 1760 these three offices had sums assured amounting to £320,000.

A number of other associations were formed during the eighteenth century, but as a rule they were short lived, and the fallacy of the assessment principle soon came to be recognised. The sum assured in the case of the Amicable fluctuated so much that in 1757 it was resolved that the sum payable under any policy should not be less than £125. In the previous year that Society refused to admit a Mr. Dodson on account of his age being over 45, and this led ultimately in 1762 to the formation of the Equitable Society on scientific principles, the sum assured being fixed and the premium being a fixed annual charge determined by the age of the insured. The first periodical investigation into the sufficiency of the life assurance fund was made in 1776, and was the first valuation of a life office ever made. "Life assurance on a fixed basis was deemed an experiment, and there being no capital beyond the premium contributions paid by the members, an overcharge was essential to safety, and equitably this overcharge was to be returned to the members to whom it of right belonged." In this way the "Bonus System" of life assurance

arose, a feature which has contributed largely to the expansion of the business. In 1792 the Westminster Society, a proprietary office, was established, the novel feature it introduced being the appointment of agents. This feature has since been adopted by all the other offices already mentioned, with the exception of the Equitable. In 1797 the Pelican Office was founded also as a proprietary company, and this brings us down to the beginning of the nineteenth century, when a great development took place in the growth of life insurance. This was aided by the exemption of premiums from Income Tax, which Pitt proposed in introducing his scheme of 1798.

Many of the existing offices were established in the early part of that century. Among them may be mentioned the Provident and the Rock in 1806, and the Eagle in 1807. In 1808 the Atlas and the Norwich Union were founded, and in 1810 the Sun Life. The Scottish Widows Fund was founded in 1815, and the Economic, the Edinburgh, and the Law Life in 1823. The shares of the last mentioned were issued exclusively to members of the legal profession, and it was the earliest of the class offices. But 1824 was the year of greatest activity, more than a dozen offices being founded in that year, including the Alliance, Medical & Clerical (now Clerical, Medical and General), Scottish Union (now Scottish Union and National) and Yorkshire. The second office was the first to promote a scheme for the assurance of under-average lives. It was at this time that the practice of giving commission to agents for introducing business became general, and that the precaution of a personal medical examination was, it is believed, adopted. Hitherto the lives had merely appeared before the Board of Directors of the various offices, who, if satisfied, admitted them.

After the activity of 1824 there was a reaction, and we find that in the next 10 years only 24 offices were established, but during the following decennium the number increased again. In the five years 1835–39 the number of new offices established was 39, and in 1840–44, 36. Previous to this offices were generally incorporated under royal charter or special Act of Parliament before commencing business, on account of the disabilities under which they would otherwise have laboured at common law; but in the last-mentioned year an Act for the Registration of Joint Stock Companies became law, the object being to invest such companies with the qualities and incidents of incorporation. New insurance companies came under the Act, and this gave an impetus to the formation of offices. In the five years 1845–49, 55 offices were established, and in 1850–54, 85. This last is a record number, and there were now no less than 187 offices transacting life business. The climax was reached in 1856, when there were 193 in existence.

About this time measures were taken to enforce the publication of the accounts of all life insurance companies which had been established under the provisions of the Joint Stock Companies Act. Attention was thus drawn to the enormous expenditure of some of these companies, and the inevitable reaction followed. During the five years 1855–59 only 29 new companies were established and no less than 81 were discontinued. Since then the decline in the number of offices has gone on almost without interruption, and in 1870 an effective check was put upon the promotion of speculative offices by the provisions of the Life Assurance Companies Act of that year, which necessitated a deposit of £20,000 being made with the Government before life business could be commenced. Seventeen offices were founded in that year; but during the 30 years which have since elapsed, only 21 new offices have been established, while many more have been discontinued chiefly by absorption with other offices, the net result being that there are now only 80 offices in existence.

The following table shows clearly the rise and fall in the number of British offices transacting ordinary business, to which class I will confine my attention in this paper. It is compiled chiefly from Mr. Morrice A. Black's chart and the table in Mr. David Deuchar's Presidential Address in 1887 to the Actuarial Society of Edinburgh:

TABLE

OF ORDINARY LIFE OFFICES EXISTING, ESTABLISHED AND DISCONTINUED.

Period.	Existing at beginning of period.	Established during period.	Discontinued during period.
1706	.....	1	.....
1721	1	2	.....
1762	3	1	.....
1792	4	1	.....
1797	5	1	.....
1799	6	2	.....
1800–1804	8	1	.....
1805–1809	9	10	.....
1810–1814	19	5	.....
1815–1819	24	4	.....
1820–1824	28	25	3
1825–1829	50	13	14
1830–1834	49	11	2
1835–1839	58	39	3
1840–1844	94	36	22
1845–1849	108	55	23
1850–1854	140	85	38
1855–1859	187	29	82
1860–1864	134	29	40
1865–1869	123	37	51
1870–1874	109	17	21
1875–1879	105	3	11
1880–1884	97	5	10
1885–1889	92	5	9
1890–1894	88	3	12
1895–1899	79	5	4
1900	80	.....	.....

All these offices, with one exception, transact life insurance in the ordinary way, that is to say, they are what are known as level premium offices. The exception is an office founded in 1891 and conducted on practically assessment principles. Another office was established on similar lines in the same year, but it has since changed to the level premium system. In addition to these a number of colonial and foreign companies have come to this country during recent years, and now they number 11 in all, but their British business is not reported separately. Of these 6 are Colonial, 4 American, and 1 French. One of the Colonial and one of the American Offices conduct their business on the assessment principle. That system has never taken a hold in this country, and the business done under it is so insignificant that it may be practically left out of account. It may be mentioned here that 14 offices also transact industrial business.

While the number of offices has fluctuated considerably, the amount of business has steadily increased. There are no authentic returns available until 1870—many of the offices in the beginning of the nineteenth century did not publish accounts at all, and the figures I give in the fol-

lowing table for the years before that are merely estimates drawn from the best sources available.* I should have liked to have given the amount of new business transacted; but for the earlier period that is practically impossible, and even for the later period the information is not required by the Board of Trade, and a number of offices do not publish it in their annual accounts. I have therefore confined myself to a statement of the amount of the funds and existing assurances, which will, I think, give a very good idea of the growth of life assurance.

TABLE

SHOWING THE FUNDS AND EXISTING ASSURANCES OF ORDINARY LIFE OFFICES.

Year.	Funds.	Existing Assurances.
1720	£50,000	.....
1760	.....	£320,000
1800	6,500,000	17,000,000
1810	10,000,000	30,000,000
1820	15,000,000	45,000,000
1830	20,000,000	65,000,000
1840	30,000,000	100,000,000
1850	45,000,000	150,000,000
1860	60,000,000	200,000,000
1870	87,767,203	292,557,343
1875	108,818,719	351,288,665
1880	128,659,580	386,911,850
1885	147,933,581	413,248,202
1890	171,547,169	455,184,135
1895	204,379,825	551,645,412
1900	248,876,376	639,264,242

It will be seen that the existing assurances amount to over £600,000,000, and that latterly they have been increasing at the rate of nearly £100,000,000 every five years, while the funds in hand amount to nearly £250,000,000.

Before 1870 the business transacted may be said to have consisted almost entirely of ordinary whole life policies. Roughly speaking, they constituted at that date 90 per cent. of the existing assurances, the remaining 10 per cent. being equally divided between whole life policies of other descriptions and miscellaneous classes. After 1870, however, it is possible to analyse the different classes of business and ascertain the growth in each by means of the valuation returns to the Board of Trade. This has been a laborious piece of work, as no summary existed for the earlier years, but I think the results justify it. The full tables are published in an appendix, as they may be useful to others engaged in a similar investigation, and the net totals are given in the following table:

* Chiefly Mr. Walford's "History of Life Assurance in the United Kingdom" (J. I. A. xxv., 114), to which I am also indebted for other information.

TABLE

SHOWING THE VARIOUS CLASSES OF THE EXISTING ASSURANCES AND ANNUITIES OF ORDINARY LIFE OFFICES.

Year.	Whole Term of Life.	Limited Payment.	Endowment Assurance.
1875	£321,176,867	£6,946,857	£9,613,524
1880	347,582,339	11,159,858	14,611,903
1885	362,329,490	13,939,934	22,884,344
1890	378,771,496	18,016,300	42,483,492
1895	405,635,943	24,915,598	98,799,984
1900	420,817,594	32,256,056	157,209,831

Year.	Pure Endowment.	Joint Lives.	Last Survivor.
1875	£1,552,072	£2,749,835	£2,271,037
1880	1,381,920	2,558,469	2,253,623
1885	1,137,538	2,465,680	2,068,998
1890	1,518,837	2,594,303	1,886,222
1895	3,465,181	3,676,030	1,858,171
1900	5,270,887	4,115,058	1,810,858

Year.	Contingent.	Issue.	Miscellaneous.
1875	£2,129,036	£1,025,200	£3,824,237
1880	2,462,688	1,343,956	3,557,094
1885	3,285,264	1,791,907	3,345,047
1890	3,812,087	2,286,889	3,814,509
1895	4,010,143	2,805,150	6,479,212
1900	4,683,223	3,642,643	9,458,092

Year.	Total Assurances.	Immediate Annuities per annum.	Deferred Annuities per annum.
1875	£351,288,665	£399,422	£129,606
1880	386,911,850	466,668	143,231
1885	413,248,202	619,132	159,550
1890	455,184,135	855,056	147,587
1895	551,645,412	1,244,533	215,149
1900	639,264,242	1,682,489	334,844

This table shows very clearly the great preponderance of the whole of life class over all other business. The sums assured under it run into hundreds of millions, and no other class at all approaches it in magnitude. The limited payment class has increased much more rapidly, but is still less than a tenth of it. Roughly speaking, about 15% of these two classes is without profits.

But a change is coming over the aspect of affairs. The great advance during recent years in the endowment assurance class can be seen at a glance; and if it continues to increase with the same rapidity in the future, it will soon be a formidable rival of the whole of life class. The latter has only increased about £15,000,000 in the last five years; whereas the endowment assurance class has increased nearly £60,000,000, and is now about 40% of the whole of life class. Eleven per cent. of it is without profits.

The pure endowment class is a small one, but it is increasing rapidly. It consists chiefly, however, of policies on the lives of children, payable when they attain age 21, as a provision of educational or professional

purposes. It is never likely to become a popular class with adults in this country, as there is a dislike on the part of people to lose everything in the event of death. Very few of these policies are issued now with participation in profits.

All the other classes are small; but they too, with one exception, are increasing, although not as a rule so quickly as the pure endowment class. The exception is the last survivor class, which actually shows a decrease. Joint life and last survivor policies are frequently issued with participation in profits, but policies in the other classes are generally without profits. The miscellaneous class consists principally of short term policies.

Coming now to the annuities, it will be seen that the immediate annuities form an important class. They have always been a favourite form of investment in this country, especially for females, and the amount paid out annually is increasing very rapidly. The deferred annuities are also increasing in amount.

The relative importance of the various classes of insurance will be more readily apprehended if the individual classes are given as percentages of the whole, and this is done in the following table:

Class of Assurance.	1875.	1880.	1885.	1890.	1895.	1900.
Whole Term of Life	91.4	89.9	87.7	83.2	73.5	65.8
Limited Payment	2.0	2.9	3.4	4.0	4.5	5.1
Endowment Assurance ..	2.7	3.8	5.5	9.4	17.9	24.6
Pure Endowment.....	.4	.3	.3	.3	.6	.8
Joint Lives.....	.8	.7	.6	.6	.7	.6
Last Survivor	.7	.6	.5	.4	.4	.3
Contingent	.6	.6	.8	.8	.7	.7
Issue	.3	.3	.4	.5	.5	.6
Miscellaneous	1.1	.9	.8	.8	1.2	1.5
	100.0	100.0	100.0	100.0	100.0	100.0

The fall in the relative position of the whole of life class, and the corresponding rise in the endowment assurance, cannot fail to attract attention. The other classes, with the exception of the limited payment, are practically insignificant.

From the figures submitted it will be seen that the growth of life assurance in this country has been very steady. Evolution, not revolution, has been the guiding principle, and any new departure has been tested and tried before any general advance along the line has been made. In this way the progress has perhaps been slower, but on the other hand it has been more enduring, and life assurance has grown to be one of the most important institutions in the United Kingdom, exercising a great influence upon the habits and customs of the people. What the future of life assurance will be no one can foretell, but it seems likely that it will be even more largely taken advantage of in the future than in the past, and that the investment side of it will be more developed than hitherto.

APPENDIX.

SUMMARY OF THE ASSURANCES IN FORCE AS SHOWN BY THE LAST RETURNS OF THE COMPANIES.

Year.	With Profits.		Without Profits.		Total.		Re-assurances Amount.	Net Amount.	Year.
	Number.	Amount.	Number.	Amount.	Number.	Amount.			
Whole Term of Life.									
		£		£		£	£	£	
1875	538,904	289,009,978	66,788	47,174,697	605,692	336,184,675	15,007,808	321,176,867	 1875
1880	588,038	313,613,265	71,043	50,294,993	659,081	363,908,258	16,325,919	347,582,339	 1880
1885	619,430	326,388,609	73,452	53,572,813	692,882	379,961,422	17,631,932	362,329,490	 1885
1890	669,593	341,598,769	81,029	55,761,779	750,622	397,360,548	18,589,052	378,771,496	 1890
1895	746,081	363,160,044	126,799	65,119,573	872,880	428,279,617	22,643,674	405,635,943	 1895
1900	793,885	377,871,245	146,458	69,885,620	940,343	447,756,865	26,939,271	420,817,594	 1900
Limited Number of Premiums.									
		£		£		£	£	£	
1875	11,405	6,335,274	1,696	733,949	13,101	7,069,223	122,366	6,946,857	 1875
1880	17,052	10,335,984	2,523	1,269,600	19,575	11,605,584	445,726	11,159,858	 1880
1885	21,263	12,379,662	4,877	1,981,262	26,140	14,360,924	420,990	13,939,934	 1885
1890	28,498	16,338,685	4,859	2,301,500	33,357	18,640,185	623,885	18,016,300	 1890
1895	37,916	22,777,220	6,720	3,141,308	44,636	25,918,528	1,002,930	24,915,598	 1895
1900	48,012	29,513,614	10,036	4,338,970	58,048	33,852,584	1,596,528	32,256,056	 1900
Endowment Assurances.									
		£		£		£	£	£	
1875	29,958	6,883,831	11,238	2,793,026	41,196	9,676,857	63,333	9,613,524	 1875
1880	44,540	10,488,278	16,427	4,230,208	60,967	14,718,486	106,583	14,611,903	 1880
1885	70,169	16,936,038	21,929	6,358,264	92,098	23,294,302	409,958	22,884,344	 1885
1890	154,465	34,517,330	28,498	8,701,293	182,963	43,218,623	735,131	42,483,492	 1890
1895	490,171	87,091,671	40,543	13,266,783	530,714	100,358,454	1,558,470	98,799,984	 1895
1900	851,485	142,003,128	56,408	17,654,587	907,893	159,657,715	2,447,884	157,209,831	 1900

SUMMARY OF THE ASSURANCES IN FORCE AS SHOWN BY THE LAST RETURNS OF THE COMPANIES.

Year.	With Profits.		Without Profits.		Total.		Re-assurances Amount.	Net Amount.	Year.
	Number.	Amount.	Number.	Amount.	Number.	Amount.			
Pure Endowments.									
		£		£		£	£	£	
1875	4,326	857,930	3,789	698,690	8,115	1,556,620	4,548	1,552,072	1875
1880	3,315	669,632	3,923	712,288	7,238	1,381,920	.....	1,381,920	1880
1885	1,537	315,241	4,384	823,297	5,921	1,138,538	1,000	1,137,538	1885
1890	2,689	456,825	6,535	1,068,012	9,224	1,524,837	6,000	1,518,837	1890
1895	1,753	392,851	14,663	3,075,330	16,416	3,468,181	3,000	3,465,181	1895
1900	1,780	389,569	19,680	4,943,318	21,460	5,332,887	62,000	5,270,887	1900
Joint Lives.									
		£		£		£	£	£	
1875	7,568	2,016,102	2,002	1,005,915	9,570	3,022,017	272,182	2,749,835	1875
1880	6,954	1,935,908	1,876	901,214	8,830	2,837,122	278,653	2,558,469	1880
1885	6,141	1,834,105	1,731	909,702	7,872	2,743,807	278,127	2,456,680	1885
1890	7,372	1,982,890	1,944	915,802	9,316	2,898,692	304,389	2,594,303	1890
1895	13,933	2,943,208	2,308	1,130,718	16,241	4,073,926	397,896	3,676,030	1895
1900	16,416	3,347,075	2,743	1,040,179	19,159	4,387,254	272,196	4,115,058	1900
Last Survivor.									
		£		£		£	£	£	
1875	1,598	1,333,164	1,156	1,063,758	2,754	2,396,922	125,885	2,271,037	1875
1880	1,508	1,261,155	1,178	1,137,928	2,686	2,399,083	145,460	2,253,623	1880
1885	1,426	1,119,577	1,160	1,060,707	2,586	2,180,284	111,286	2,068,998	1885
1890	1,197	926,815	1,198	1,250,547	2,395	2,177,362	291,140	1,886,222	1890
1895	1,042	834,663	1,127	1,391,994	2,169	2,226,657	368,486	1,858,171	1895
1900	877	718,484	1,106	1,466,821	1,983	2,185,305	374,447	1,810,858	1900

SUMMARY OF THE ASSURANCES IN FORCE AS SHOWN BY THE LAST RETURNS OF THE COMPANIES.

Year.	With Profits.		Without Profits.		Total.		Re-assurances Amount.	Net Amount.	Year.
	Number.	Amount.	Number.	Amount.	Number.	Amount.			
				Contingent.					
		£		£		£	£	£	
1875	112	90,986	1,665	2,487,248	1,777	2,578,234	449,198	2,129,036	1875
1880	98	96,032	1,953	3,086,028	2,051	3,182,060	719,372	2,462,688	1880
1885	72	89,587	2,423	4,216,695	2,495	4,306,282	1,021,018	3,285,264	1885
1890	43	43,204	2,930	4,860,247	2,973	4,903,451	1,091,364	3,812,087	1890
1895	22	27,866	3,487	5,313,124	3,509	5,340,990	1,330,847	4,010,143	1895
1900	37	70,363	4,091	6,121,060	4,128	6,191,423	1,508,200	4,683,223	1900
				Issue.					
		£		£		£	£	£	
1875	.....	.....	296	1,230,455	296	1,230,455	205,255	1,025,200	1875
1880	3	3,500	419	1,713,046	422	1,716,546	372,590	1,343,956	1880
1885	5	6,150	557	2,489,336	562	2,495,486	703,579	1,791,907	1885
1890	6	10,577	813	3,235,588	819	3,246,165	959,276	2,286,889	1890
1895	5	14,878	972	3,905,432	977	3,920,310	1,115,160	2,805,150	1895
1900	11	25,250	1,369	5,064,524	1,380	5,089,774	1,447,131	3,642,643	1900
				Miscellaneous.					
		£		£		£	£	£	
1875	649	366,066	4,559	3,951,233	5,208	4,317,299	493,062	3,824,237	1875
1880	486	285,840	4,397	3,937,134	4,883	4,222,974	665,880	3,557,094	1880
1885	720	272,130	3,813	3,706,503	4,533	3,978,633	633,586	3,345,047	1885
1890	179	109,421	3,933	4,892,791	4,112	5,002,212	1,187,703	3,814,509	1890
1895	954	909,570	5,504	7,056,304	6,458	7,965,874	1,486,662	6,479,212	1895
1900	2,472	1,368,633	7,992	10,137,850	10,464	11,506,483	2,048,391	9,458,092	1900

SUMMARY OF THE ASSURANCES IN FORCE AS SHOWN BY THE LAST RETURNS OF THE COMPANIES.

Year.	With Profits.		Without Profits		Total.		Re-assurances Amount.	Net Amount.	Year.
	Number.	Amount.	Number.	Amount.	Number.	Amount.			
				Total Assurances.					
		£		£		£	£	£	
1875	594,520	306,893,331	93,189	61,138,971	687,709	368,032,302	16,743,637	351,288,665	1875
1880	661,994	338,689,594	103,739	67,282,439	765,733	405,972,033	19,060,183	386,911,850	1880
1885	720,763	359,341,099	114,326	75,118,579	835,089	434,459,678	21,211,476	413,248,202	1885
1890	864,042	395,984,516	131,739	82,987,559	995,781	478,972,075	23,787,940	455,184,135	1890
1895	1,291,877	478,151,971	202,123	103,400,566	1,494,000	581,552,537	29,907,125	551,645,412	1895
1900	1,714,975	555,307,361	249,883	120,652,929	1,964,858	675,960,290	36,696,048	639,264,242	1900
				Immediate Annuities (Per Annum).					
		£		£		£	£	£	
1875					9,774	400,201	779	399,422	1875
1880					10,803	467,559	891	466,668	1880
1885					13,852	622,337	3,205	619,132	1885
1890					18,752	867,400	12,344	855,056	1890
1895					25,431	1,267,422	22,889	1,244,533	1895
1900					33,129	1,736,726	54,237	1,682,489	1900
				Deferred Annuities (Per Annum).					
		£		£		£	£	£	
1875					3,761	130,806	1,200	129,606	1875
1880					3,865	144,151	920	143,231	1880
1885					4,591	160,050	500	159,550	1885
1890					4,508	155,609	8,022	147,587	1890
1895					7,212	227,254	12,105	215,149	1895
1900					12,516	358,533	23,689	334,844	1900

RÉSUMÉ.

SUR LE DÉVELOPPEMENT DE L'ASSURANCE SUR LA VIE, DE L'ASSURANCE À COTISATION, DES AFFAIRES PUREMENT À TERME ET DES AFFAIRES À FONDS PERDUS.

Par James Chatham.

On peut dire que l'assurance sur la vie dans le Royaume Uni de Grande Bretagne et d'Irlande a pris naissance au commencement du dix huitième siècle. Elle était conduite au début sur le principe de la cotisation, mais on ne tarda pas à reconnaître la fausseté de ce principe et en 1872 la Société l'Equitable fut fondée sur les principes scientifiques.

Beaucoup des compagnies anglaises existantes ont été fondées au commencement du dix-neuvième siècle. Le nombre des compagnies a progressivement augmenté jusqu'en 1856, époque à laquelle il y en eut 193 en existence. Depuis lors le nombre des compagnies a graduellement diminué, presque sans interruption et il n'en reste plus que quatre-vingts en existence. Une seule d'entre elles fait des affaires d'après le principe de cotisation.

Les assurances en cours se montent à quinze milliards de francs et depuis un certain temps elles ont augmenté au taux de 2 milliards et demi par période de cinq années: les fonds en mains se montent à près de 7 milliards et demi.

L'auteur analyse les différentes classes d'affaires faites après 1870 et donne une table qui montre le pourcentage individuel de chaque classe par rapport à l'ensemble.

On ne peut manquer de remarquer la baisse de la classe entière des assurances sur la vie dans leur position relative et l'augmentation correspondante de la classe des assurances à terme. Les autres classes, excepté celle des versements limités, sont à peu près insignifiantes. Les placements à fonds perdu forment une classe importante qui continue à s'accroître.

La croissance des assurances sur la vie, des assurances à terme et des placements à fonds perdu a été très constante dans ce pays.

KURZE NOTIZ.

ÜBER DAS WACHSTHUM VON LEBENSVERSICHERUNG, ANTHEILVERSICHERUNG, REINEM AUSSTATTUNG-GESCHÄFT UND JÄHRLICHEM RENTEN-GESCHÄFT.

Von James Chatham.

Lebensversicherung in dem Vereinigten Königreiche und Irland mag als im Anfang des achtzehnten Jahrhunderts begonnen zu haben angegeben werden und wurde zuerst nach dem Antheil-Prinzip durchgeführt. Das Trügerische dieses Prinzips wurde jedoch bald erkannt und in 1762 wurde die „Equitable"-Gesellschaft auf wissenschaftlichen Prinzipien gegründet.

Viele der bestehenden englischen Gesellschaften wurden im ersten Theile des neunzehnten Jahrhunderts eröffnet, und die Anzahl wuchs beständig bis zum Jahre 1856, wo 193 vorhanden waren. Seit dieser Zeit hat sich die Zahl der Gesellschaften nach und nach ohne Unterbrechung beinahe verringert, und es bestehen jetzt nur noch 80 Gesellschaften, von welchen nur eine auf der Basis von Antheil-Prinzipien geleitet wird.

Die bestehenden Versicherungen belaufen sich auf mehr als 600,000,000 Pfund, und haben sich letzhin um fast 100,000,000 Pfund alle 5 Jahre gesteigert, während sich das Kapital auf beinahe 300,000,000 Pfund beläuft.

Die verschiedenen Klassen des Geschäfts nach 1870 werden analysiert und eine Tabelle vorgelegt, welche den Prozentsatz jeder einzelnen Klasse gegenüber dem Ganzen zeigt. Das Sinken der gesammten Lebens-Klasse und die entsprechende Steigerung der Ausstattung-Versicherung erregt unbedingte Aufmerksamkeit. Die andern Klassen, mit Ausnahme der der beschränkten Zahlung, sind gewissermaassen unbedeutend. Unmittelbare jährliche Renten bilden eine bedeutende Klasse und nehmen an Zahl zu.

Das Wachsthum in Lebensversicherungen, reinem Ausstattungs-Geschäft und jährlicher Renten-Versicherung hat sich in diesem Lande sehr regelmässig gehalten,

THE GROWTH OF ACCIDENT AND EMPLOYERS' LIABILITY INSURANCE IN GREAT BRITAIN.

BY

WILLIAM R. STRONG, F.I.A.,

Of the London Guarantee and Accident Company, Ltd., London.

The benefit to be derived from insurance against the pecuniary loss resulting from injury by accident does not appear to have been generally realized before the introduction of railways. Under the common law, dependants had no remedy in the case of fatal accidents, and it was not until the passage of Lord Campbell's Act, in 1846, that damages could in such cases be recovered.

The new and rapid means of traveling by rail possessing dangers, the consequences of which were exaggerated by public nervousness and ignorance, afforded an obvious field for insurance, and in the period from 1845 to 1848 eleven companies were projected to insure against railway accidents, fatal and non-fatal, charging mostly an annual premium of £1 for a first-class risk to insure £1,000 at death and proportionate benefits for a non-fatal injury.

Adequate support for these eleven companies was not forthcoming, and only one of them, the Railway Passengers Assurance Company, still survives. This office was provisionally registered on December 15, 1848, as the Universal Railway Casualty Compensation Company, a title quickly abandoned in favor of that now so widely known. It was completely registered on March 22, 1849. Its plans included the issue of insurance tickets, and powers for the purpose were conferred upon it by a special Act of Parliament (12 and 13 Vict., cap. xl.) passed on June 26, 1849. This act enabled the company to compound for the payment of the stamp duty on the tickets issued, regulated the steps to be taken by the assured in proof of his claim, and made unlawful the issue of an insurance ticket to a child under twelve years of age, a restriction which remains to this day. Further, the act provided that the compensation in the case of non-fatal injuries should be such "as shall be deemed a reasonable and liberal compensation for such injury as well as for the pain of mind and body and the loss of time and money consequent thereon," the amount being assessed by the company subject, in the event of dispute, to arbitration. By a subsequent act passed June 23, 1864 (27 and 28 Victoria, cap. cxxv.), a railway accident was defined as an accident to the train, and the scale of disablement allowances was fixed as follows: Where the sum at death was £1,000, the allowances for non-fatal accidents were £6 a week during total, and £1 10*s.* during partial disablement; for £500 at death, the sums were £3 total and 15*s.* partial; and for £200 at death, £1 5*s.* total and 6*s.* 3*d.* partial, the period during which compensation was payable being limited to twenty-six weeks from the time of accident. The premiums charged were respectively 3*d.*, 2*d.*, and 1*d.* Travelers by excursion train could not recover more than £500.

During the first six months of the company's existence the premium income was £1,421, and the amount paid in claims £7 10*s*. Mr. Alexander Beattie, the first secretary, afterwards joined the board, and in 1852, Mr. W. J. Vian, who had been with the office since 1849, was made secretary, his name becoming ultimately even better known among the insuring public than that of the company itself. On his death, in 1890, he was succeeded by his brother, Mr. Alfred Vian, and Mr. Massey as joint secretaries. Mr. Massey subsequently retired owing to ill-health, and Mr. Vian became, and still remains, sole secretary.

On January 24, 1850, the Accidental Death Insurance Company was registered to insure against death resulting within three months of the occurrence of an accident *of any kind,* but before the company had actually commenced business, the actuary, Mr. Edward Riley, suggested the desirability of adding to the scheme the insurance of compensation for non-fatal, accidental, bodily injury. The plan was adopted by the proprietors on June 3, 1850, from which date the system of insurance against general accidents commenced. The rates charged for persons not exposed to any special risk of occupation were: to cover death by accident alone, £1 per annum for £1,000; to cover death and compensation for non-fatal injury, £3 10s. per annum for £1,000 at death and £5 per week during entire disablement, with a sum not exceeding £10 for medical attendance during the injury. For hazardous occupations special rates were charged, and an extra premium was required to cover loss of leg or arm or total loss of sight. For railway accidents only, the premium was 10*s*. per annum for £1,000 at death and £5 per week compensation during disablement. The allowance for medical attendance was subsequently abandoned, and in lieu the weekly allowance to the assured during temporary total disablement was increased to £6. In all cases the limit for temporary disablement allowance was twenty-six weeks.

The Railway Assurance Company was registered on July 16, 1850. Its scheme was to charge £2 2*s*. for the whole of life to cover the risk of being killed while traveling by railway. The policy went beyond that of the Railway Passengers Company, and covered accidents and injuries incident to railway traveling and not necessarily incurred through an accident to the train itself. The company only maintained an independent existence for two years, and the system of charging single premiums for whole life accident insurance has not met with popular favor, although the principle has not been altogether abandoned.

The Travellers and Marine Insurance Company, founded in 1854 to grant policies combining land and sea risks, soon afterwards became by special Act of Parliament the Accidental Death Company No. 2.

In 1855 the Railway Passengers extended its business from that of insuring against railway accidents only to insuring against general accidents.

In 1866 the Accident Insurance Company was founded, and absorbed the business of the Accidental Death No. 2.

The Norwich and London Accident Insurance Association was founded in 1856, the London Guarantee and Accident Company Limited in 1869, and the Ocean Railway and General in 1872.

The progress of individual accident insurance was, from the nature of the business, somewhat slow. The public needed to be educated to the advantages of the system. Accident policies in contrast to life assurance provide benefits payable only on the happening of events which are not certain to occur, and though the same characteristic obtains in

a marked degree in fire insurance, loss by fire appealed more vividly to the imagination than the possibility of personal injury. Accidents were popularly assumed to be comparatively infrequent, and an active propaganda of statistics based on the actual experience of the offices was necessary to demonstrate the contrary. Only of recent years accident policies for more than £1,000 at death have become frequent.

In 1876 the Railway and General Accident Company evolved a scheme in which, while the premium was alike in all occupations, the amount of compensation depended on the class of accident met with, or, to adopt the explanation of the company itself, "the scale of payment for claims is differentiated instead of the premiums." This method was naturally found to be unsatisfactory, and the company went into voluntary liquidation in 1878.

A form of profit-sharing in a reduction by 10 per cent. of the premiums payable by policy-holders who had made no claims during the preceding five years was devised in 1870. The allowance gradually extended to all policy-holders, and ultimately insurers who had become entitled to the reduction were permitted to transfer to other offices "without loss of bonus."

About the year 1880 increased benefits for total loss of limbs or eyesight were again introduced into accident policies, from which they had been omitted since 1855.

To the Law Accident Company is due the recent revival in this country of the system of doubling the benefits payable in case of railway accidents, a previous attempt in this direction having been made in 1851. This was shortly afterwards followed by the addition at an extra premium of temporary allowances for disablement caused by typhus, typhoid, scarlet fever, smallpox, and measles.

The stress of competition soon led to additions to the list of diseases, and under one of the most recent policies issued, no less than thirty-one diseases are covered.

More recent features are the annual addition of 5 per cent. to the sum payable in case of death until it reaches 150 per cent. of the amount originally insured, a reduction of 10 per cent. on the premium to total abstainers, the removal of restrictions of locality, even in cases of disease, payment in cases of blindness and paralysis, and annuities if permanent disablement is due to other causes than the loss of limb or eyesight.

Side by side with the liberalization of the insurance contracts there has been developed a method of gratuitous insurance for advertising purposes. The plan was first introduced by a weekly penny paper of paying £100 to the representatives of any person killed by railway accident if a copy of the current issue of the periodical were found on his body. This was followed by other journals, the risk being usually covered by the guarantee of an insurance company.

Until the year 1880, the accident business of the companies was practically confined to the issue of individual policies, and its growth was very gradual. In that year fresh scope was afforded by the passing of the Employers' Liability Act, described as "An Act to extend and regulate the liability of employers to make compensation for personal injuries suffered by workmen in their service."

The rights of workmen against their employers for compensation for injuries sustained in their service had hitherto been regulated by common law, and English judges had laid down the doctrine of common employment according to which "when in making a contract of service

the employee did from the nature of the contract undertake to take upon himself known risks of his employment, he did likewise contract to take upon himself as one of the obvious risks of the trade the risk arising from the negligence of fellow servants." Hence, the common-law right of an employee to recover damages against his employer existed only where the actual negligence of the latter was established.

The master was, however, liable for "injury resulting if he omitted to provide the servant with proper materials and resources for his work, or if he was negligent in the choice of persons to whom he intrusted the supply of such materials or resources, or in the selection of proper servants."

The Employers' Liability Act of 1880 was intended to restrict the application of the doctrine of common employment and to make the employer responsible for the negligence of those whom he placed in positions of authority or superintendence. Put shortly, it provides that:

Where personal injury is caused to a workman by defect in the condition of the ways, works, machinery, or plant used in the business, or by the negligence of any person in the service of the employer intrusted with superintendence, or to whose orders the workman was bound to conform, the workman, or, in case the injury results in his death, his legal representatives, shall have the same right of compensation against the employer as if he had not been in the employer's service. The amount of compensation recoverable is limited to a sum not exceeding three years' wages.

The extended liability thus imposed upon employers was in the nature of a trade hazard, and various companies were formed to undertake the risks involved, the most important being the Employers' Liability Assurance Corporation. Existing companies also gradually entered on the field, which was extended to include insurance against injuries to persons not in the employ of the insured, commonly called "third party" risk. The premium was necessarily a matter of experiment, and there was considerable competition, with the natural result that the rates in many cases were unduly reduced. In 1891 nine of the companies formed an association for the purpose of fixing from the accumulated experience correct rates and maintaining them in future. These companies were afterwards joined by four others.

In 1897 the liability of employers in certain trades toward their workmen was further extended by the Workmen's Compensation Act. To quote a legal writer * on the subject, "the passing of the Employers' Liability Act, 1880, marks the close of the first definite stage of the legislative period in which a standard of duty independent of contract was gradually set up; while the Workmen's Compensation Act, 1897, is not improbably only the commencement of a system of compulsory restriction on the free relations of capital and labor which admits of almost indefinite expansion. The Employers' Liability Act, 1880, provided that the law should imply more generous conditions of employment. The Workmen's Compensation Act, 1897, compels their adoption despite the agreement to the contrary of the employer and his workmen. It also imposes new obligations on the employer only to be explained on the theory of a State insurance of labor, of which, in the first instance, at any rate, the employer is to bear the burden."

Broadly, the act provides that if personal injury by accident arising out of and in the course of the employment is caused to a workman, his

* The Law of Employers' Liability and Workmen's Compensation. T. Beven.

employer shall be liable to pay compensation. The amounts payable are, shortly, as follows:

In the case of death resulting from the injury, if the workman leaves dependants wholly dependent upon his earnings, three years' wages, but not less than £150 nor more than £300; if he leaves dependants partly dependent on his earnings, a sum to be agreed on, but not exceeding the amount payable in the preceding case, and if he leaves no dependants, the expenses of his medical attendance and burial not exceeding £10.

In case of total or partial incapacity for work resulting from the injury, a weekly payment during the incapacity after the second week not exceeding one-half of his weekly earnings nor £1 per week.

The act applies to employment in railways, factories, mines, quarries, or engineering works on buildings exceeding thirty feet in height in course of construction, or repair by means of a scaffolding, or demolition, or on which machinery driven by steam, water, or other mechanical power is being used for the purpose of the construction, repair, or demolition.

The accident companies at once prepared to deal with the great increase both in the nature of the risk and in the volume of business anticipated as a consequence of the act. New companies were formed, and some fire and life offices embarked in the business, utilizing to great advantage their extensive agency organizations. A Tariff Association was formed, which soon numbered twenty-four companies, and the available statistics for assessing rates of premium were collected and suitable forms of policy were drafted. The calculation of rates was a matter of complexity, but ultimately a table was agreed upon. The act was so loosely drawn that opinions differed widely as to its interpretation, and reliable statistics relative to accidents in different industries in this country were not obtainable. The situation was complicated by the abstention from the association of certain of the offices. At first the tendency of the courts was to interpret the act in a conservative spirit. This encouraged and seemed to justify the action of the non-tariff offices and brought about a war of rates eventuating in many secessions from the Tariff Association, and the practical disappearance of the scale of rates it had promulgated. Gradually, however, the courts commenced to liberalize their reading of the act, the swing of the pendulum made itself felt, and the cost of claim settlements became more onerous, the tendency of the claims to steadily and continually increase in number and cost which had been experienced by the insurance departments in Germany and Austria, manifested itself in this country, and in some instances it became evident that business had been transacted at a loss.

In 1900 the benefits of the Act of 1897 were extended to workers in agriculture, which is defined to include horticulture, forestry, the keeping or breeding of live stock, poultry, or bees, and the growth of fruit and vegetables.

The development of accident insurance in Great Britain thus falls into three periods. From 1850 to 1880 it consisted of individual accident risks, in 1880 the risk of Employers' Liability was added, and from 1897 Workmen's Compensation became the most prominent feature.

Owing to various circumstances, it is not possible to form any accurate estimate of the effect of these changes upon the business. The companies have never been required by law to publish their accounts. Few of them did so before 1884, and even now the reports of many of the mutual offices are not available to the public. Those companies that

publish their figures do not subdivide the premium income into the sources from which it is derived. Nearly all of them transact several other branches of insurance, including fidelity guarantee, plate glass, burglary, engine and boiler, lift, and even fire insurance. Several have extended their operations to America, the British Colonies, and the Continent of Europe, so that only a rough idea is obtainable of the growth of the business in Great Britain.

The following tables have been compiled from the figures contained in the *Post Magazine Almanac*. The first shows the number of offices transacting accident insurance in each year from 1850 to 1883.

1850	3	1862	4	1873	8
1851	4	1863	3	1874	9
1852	6	1864	4	1875	9
1853	6	1865	6	1876	10
1854	7	1866	4	1877	17
1855	9	1867	3	1878	13
1856	12	1868	6	1879	12
1857	9	1869	7	1880	13
1858	8	1870	9	1881	17
1859	6	1871	9	1882	19
1860	5	1872	8	1883	24
1861	5				

The next table shows the number of offices transacting accident business, the number of accounts published, the total premium income contained therein for the financial period ending in the year against which the figures are placed and the premium income of those of the offices whose business has been confined to Great Britain from 1884 to 1901. The latter gives some idea of the growth of revenue since the introduction of workmen's compensation insurance, although the omission of the offices transacting foreign business excludes some which have secured a large volume of risks under the act. The last column shows the premium income of the offices transacting foreign business.

YEAR	Total number of companies	Number of companies accounts included	Total of net premium incomes published	Total of premiums of offices not transacting foreign business	Total premium of companies transacting foreign business
1884	24	12	£ 484,179		
1885	26	19	628,422	£ 486,520	£ 141,902
1886	27	18	643,837	485,843	157,994
1887	33	21	729,059	515,698	213,361
1888	39	23	851,227	548,599	302,628
1889	37	25	937,179	578,785	358,394
1890	40	27	1,009,516	606,746	402,770
1891	41	29	1,108,474	710,600	397,874
1892	41	29	1,177,228	785,907	391,321
1893	37	33	1,295,545	838,520	457,025
1894	38	29	1,368,048	827,014	541,034
1895	43	27	1,476,416	837,015	639,401
1896	46	27	1,632,525	883,810	748,715
1897	44	30	1,875,560	1,005,130	870,430
1898	46	36	2,622,920	1,350,212	1,272,708
1899	89	39	2,687,345	1,368,715	1,318,630
1900	95	42	3,085,612	1,468,220	1,617,392
1901	85	40	3,874,654	1,654,319	2,220,335

The main principles upon which personal accident insurance is transacted have not been varied. The policy is an annual contract

terminable or renewable at the option of either party. The cost of disablement from accident is assumed to remain constant at all insurable ages, the extra risk during the earlier period of life being set off against the greater vitality and recuperative power of youth, while in later life the diminished ability to resist the effects of injury is compensated for by greater caution and less reckless exposure to danger.

The extension of accident insurance to cover benefits in case of sickness carries with it certain dangers. Sickness insurance is a distinct branch, with its own difficulties and peculiarities, calling for special treatment in its administration. It more nearly approaches to life insurance, inasmuch as the liability increasing with age requires the accumulation of reserves calculated on scientific principles.

The system of calculating the premiums for workmen's insurance as a percentage on the amount of wages paid was originated in this country by the Employers' Liability Corporation, and is clearly the simplest solution of the problem. It would obviously be impracticable to issue separate policies to the workmen or to insure them as individuals. Employment in manual labor, even when the workers are skilled, is shifting and precarious, and is in many cases intermittent, while the unskilled laborer is mostly engaged and paid by the hour. Hence, the only practical measure of the number exposed to risk is the amount expended in wages.

Up to the present it has not been found possible to do more than ascertain the cost of the claims as a percentage of the wages. Sufficiently elaborate statistics have not been tabulated to facilitate the calculation either of the probability of a particular accident or of its probable cost, and as this varies in similar injuries sustained under different circumstances, it has so far been impracticable to disintegrate the average cost into its component parts with mathematical precision.

RÉSUMÉ.

DÉVELOPPEMENT DE L'ASSURANCE CONTRE LES ACCIDENTS ET RISQUES DES PATRONS DANS LA GRANDE BRETAGNE.

Par William R. Strong.

L'Assurance contre les accidents doit son origine à l'introduction des voies ferrés — Date de l'établissement et histoire des commencements de la Railway Passengers' Assurance Company et de l'Accident Company — Établissement des compagnies « Norwich & London,» « London Guarantee & Accident » et « Ocean » — Extension graduelle des bénéfices consentis — Développement dû à la loi de 1880 sur les Risques des Patrons — Sommaire de ses clauses — Formation d'un Comité des Bureaux d'Accidents — Augmentation des risques imposés aux patrons par le « Workmen's Compensation Act » de 1897 — Résultat de cette loi sur les affaires et les compagnies intéressées — Extension de la loi de manière à comprendre les Travailleurs Agricoles — Nombre des compagnies qui assurent contre les accidents et revenus dérivés des primes durant des années successives — Remarques générales sur le système d'assurance contre les Accidents, Risques des Patrons et Dédommagements aux ouvriers.

KURZE NOTIZ.

DAS WACHSTHUM DER UNFALL- UND ARBEITGEBER-VERBINDLICHKEITS-VERSICHERUNG IN GROSS-BRITANNIEN.

Von William R. Strong.

Die Unfall-Versicherung verdankt ihren Ursprung der Einführung von Eisenbahnen — Datum der Etablierung und Geschichte des Beginnes der „Railway Passengers' Assurance Company" und der „Accident Company" — Etablierung der „Norwich & London," „London Guarantee & Accident" und „Ocean" Gesellschaften — Allmähliche Ausdehnung der gewährten Vortheile — Entwickelung infolge „Employers Liability Act of 1880" — Zusammenfassung der getroffenen Beschlüsse — Bildung des „Accident Offices Committee" — Weitere den Arbeitgebern durch den „Workmen's Compensation Act of 1897" auferlegte Verbindlichkeit — Einwirkung des Gesetzes auf das Geschäft und die ein solches ausübenden Gesellschaften — Erweiterung des Gesetzes zum Schutze der Landwirthschaftsarbeiter — Zahl von Unfall-Versicherungs-Gesellschaften und deren Einkommen aus Prämien in auf einander folgenden Jahren — Allgemeine Bemerkungen über das System von Unfall-, Arbeitgeber-Haftbarkeits- und Arbeiter-Compensations-Versicherung.

OLD AGE AND WORKMEN'S PENSIONS IN GREAT BRITAIN AND IRELAND.

BY

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The proposed author of a Report on the second subject in the programme of the Congress having been compelled to announce at a very recent date his inability to fulfill his task, owing to the pressure of unexpected work, it was thought best, in the circumstances, to ask several experts to devote themselves, each to some one of the various branches of the question, and as in the short time left no one was forthcoming for the paper on the "Growth of Old Age and Workmen's Pensions," the writer, rather than leave this very important and interesting subject untouched, has made a brief sketch of its history for the use of the members of the Congress, although he does not claim to have any intimate practical acquaintance with it.

Old Age Pensions in Eighteenth Century.—At so early a date as the close of the eighteenth century there were proposals for the provision of State aid for the aged, and in 1772 a Bill for establishing a voluntary scheme of annuities for workmen to be guaranteed and assisted by the rates, passed the House of Commons, but was rejected by the House of Lords. In his "Rights of Man," Thomas Paine proposed the creation in every nation of "a national fund to pay to every person who arrived at the age of twenty-one years the sum of £15 sterling to enable him (or her) to begin the world, and also £10 sterling during life to every person now living of the age of sixty years, and to all others when they arrive at that age, to enable them to live in old age without wretchedness, and to go decently out of the world." Nothing practical followed, however, until the great reform of the Poor Law in the subsequent half century, and it is only within the last twenty-five years that the subject has again become prominent.

Causes of the Reopening of the Question in Modern Times.—Large as is the development of self-help in its effort to provide for old age and sickness, as may be gathered from other reports submitted to the Congress, especially that of Mr. E. W. Brabrook, C.B., Chief Registrar of Friendly Societies, there remains a large percentage of the population practically unable to help itself, and that through no fault of its own. The advocates of State pensions have for a long time contended that while the operation of the Poor Law system is demoralizing and pauperizing in its effect, a scheme of National Insurance would not only raise the condition of the labouring classes, but also greatly diminish the Poor Rates. They maintain that the amount and cost of pauperism in the United Kingdom is greater than in foreign countries relatively to the population, and they urge in support of their views the uncertainty of the efforts made by the thrifty poor to secure themselves against pauper-

ism as evidenced by the unsatisfactory financial condition of a large number of Friendly Societies.

Canon Blackley's Scheme of Compulsory Insurance to Secure Sick Pay and an Old Age Pension.—To the disinterested patience and zeal of the late Rev. W. L. Blackley, the Vicar of a country parish, and one of the Honorary Canons of Winchester, must be ascribed the proposal of a plan which gave a substantive form to the growth of public opinion and focused a controversy which can only be described as having been previously altogether vague. His scheme was based on the assumption that the great mass of the population are able to provide for themselves, and was one for the compulsory insurance of all persons, of both sexes and of every class, by the prepayment between the ages of eighteen and twenty-one years of the sum of £10 or thereabouts into a National Friendly or Providence Society, thereby securing to the wage-earning classes 8*s.* per week sick pay, and 4*s.* per week pension after the age of seventy years. A Society, of which Canon Blackley was practically the founder, known as the National Provident League, set on foot an agitation which resulted in a Select Committee being appointed "to inquire into the best system of National Provident Insurance against Pauperism." It held its first meeting on June 8, 1885, but was unable to complete its inquiry before the end of the Parliamentary Session. Another Select Committee continued the inquiry in the following year, but was interrupted by the sudden dissolution of Parliament. In February, 1887, a Committee was again appointed, and on August 2, 1887, was at last able to make a report.

A large number of witnesses were examined, including Messrs. Frederick Hendriks, R. P. Hardy, and William Sutton, all Fellows of the Institute of Actuaries, and Mr. Reuben Watson, an Associate of that body. Although a number of schemes were submitted to the Committee, the inquiry practically narrowed itself into an examination of that of Canon Blackley, to which the evidence always tended to revert, for the minds of the witnesses were manifestly impressed by it, whether favorably or unfavorably, to the exclusion of all other proposals. The Select Committee found that the actuarial and administrative difficulties in the way of insurance against sickness and accident were sufficient to prevent their recommending the adoption of a compulsory scheme. In their opinion one of the most important objections was the great difficulty there would be in preventing malingering, and in keeping down the amount of sick pay, an objection which seriously affected all that part of the scheme which referred to sickness benefit. They thought also that many of the poorest class would be unable to provide £10 between the ages of eighteen and twenty-one; and that even if able, they would be unwilling and could not be compelled; and that the exceptions which would have to be made would, to a great extent, prevent the scheme benefiting many of those who at present add largely to the pauperism of the country. It would not assist those who are out of work, or force the idle or dissolute to work, although these two classes form a large proportion of the present recipients of Poor Relief. Mr. R. P. Hardy being asked whether the prepayment of £10 would be sufficient to cover the liabilities under Canon Blackley's scheme replied: "Not according to any basis with which I am acquainted, unless it could be shown satisfactorily that the number of abstentions from claims of those who became ineligible under the scheme would be such as to make the balance a sufficient payment."

Public opinion continued to interest itself in the question and various schemes were brought forward. They may roughly be divided

into three classes: (1) Those which contemplated universal pensions without contributions; (2) those which proposed the grant of State aid to persons voluntarily desiring to make provision for old age for themselves; and (3) schemes analogous to those of Canon Blackley already described.

The schemes identified with the names of Mr. Charles Booth and the Rt. Hon. Joseph Chamberlain are typical of the two former classes, and should, therefore, be briefly described.

Mr. Charles Booth's Scheme of Universal Old Age Pensions Without Contributions.—Mr. Booth's proposal was, that subject to certain limitations, every person, male or female, on attaining the age of sixty-five years, should be given for the remainder of life a sum of 5*s.* weekly out of the public funds. He admitted that the immediate cost of the scheme might reach £24,500,000, while the saving on the Poor Law expenditure would not exceed £2,000,000. He proposed that the bulk of this large sum should be raised by equitable taxation in such a manner that "every one should pay in proportion to what he earns."

Mr. Chamberlain, speaking at Highbury, near Birmingham, on May 24, 1899, described Mr. Booth's scheme as "a gigantic system of outdoor relief for every one, good and bad, thrifty and unthrifty, the waster, drunkard, and idler, as well as the industrious."

Mr. R. P. Hardy proposed a modification of this scheme, suggesting that "the pension right should be recognized only for the proved impecunious aged, or by supplementing the income of any acquired property up to some reasonable limit." He proposed that the pensioner should be over sixty-five and give up all work, and the pension was to be the equivalent of the inclusive cost of the maintenance in a Poor Law Establishment of an aged pauper, or on an average 10*s.* a week.

Scheme of Unofficial Parliamentary Committee for State Pensions for those Voluntarily Contributing a part of the Cost.—Mr. Chamberlain's scheme was the result of the deliberations of an unofficial Committee composed of about eighty members of Parliament, of which that statesman was Chairman. He described it as in the nature of an experiment, and contemplated "three cases in which persons desirous of making provision for old age and voluntarily prepared to do so, can be helped by this State Pension Fund."

In the first case an annuity of 5*s.* a week from the age of sixty-five was provided for, with no collateral advantage or return of subscription in event of previous death. The insurer was to deposit £2 10*s.* at or before the age of twenty-five years, and after that age pay 10*s.* annually up to the age of sixty-five. The State assistance was to consist of an entry of a credit of £10 in the insurer's pass-book under the same date that his own deposit bore therein. His annual payments were to be similarly entered as they were made with interest at 2½ per cent. per annum on the total amount of credit and deposits in each year. The credit of £10 was to be entered in the insured's book by way of stimulus at the time of the first deposit and to prevent withdrawals, but the financial details of the scheme were to be a question of State bookkeeping, though it was suggested that the appropriation of funds by the State to meet its liability should be spread over the whole period of insurance. By payment of higher premiums additional pensions were to be secured, but without further State contribution.

In the second case the deposit was to be £5, the annual payment £1, and the State Aid the equivalent of £15 deposited at or before age twenty-five, and there were to be other benefits in addition to the pension of 5*s.*

a week at sixty-five, the chief being a provision for Widows and Children in the event of death after the third payment and before the age of sixty-five. Lower rates and pensions were proposed for females, but without provision for any benefit in case of death before the age of sixty-five.

The third case was devised in order to insure the coöperation of the Friendly Societies, and provided that any person after depositing 30*s.*, if male, 25*s.*, if female, into the Post-Office, and insuring in any Society for £6 10*s.* or £3 18*s.* respectively, were to have their pension doubled by the State at the age of sixty-five.

Mr. Chamberlain at first proposed that his scheme should be administered by the State, through the Post-Office, but subsequently suggested that it would be better to have it conducted by the Local Authority.

Royal Commission to Consider System of Poor Law Relief, 1893.—In 1893 Mr. Gladstone's Government was pressed to entertain the above or some other scheme, but proposed the appointment of a Royal Commission, of which Lord Aberdare was Chairman. His Majesty the King (then Prince of Wales), was a member, and showed his great interest in the question by constantly attending its meetings. The Royal Commissioners were appointed to consider "whether any alterations in the system of Poor Law Relief are desirable in the case of persons whose destitution is occasioned by incapacity for work resulting from old age, or whether assistance could otherwise be afforded in those cases." A great number of witnesses were called before it, including Messrs. R. P. Hardy, William Sutton, and Reuben Watson. The Report, which was signed on February 26, 1895, covers over one hundred pages of printed matter and includes as many as 18,134 questions and answers. After making various recommendations with a view to the improvement of the Poor Law, the Royal Commissioners indicated points in connection with the position of Friendly Societies which needed attention. They reported that having "carefully examined the various schemes for State assistance to the aged which have been submitted to us, and bearing in mind the great labor and thought expended on them, and the high public spirit and deep sympathy with suffering which inspired their authors, we regret that, in view of the financial and economic difficulties involved, we have been unable to recommend the adoption of any of the schemes as yet suggested, whether for endowment or for assisted insurance." They further reported that, having regard to the widespread expectation in and out of Parliament, that some provision other than that made by the Poor Law, should be devised for the assistance in old age of those among the poor who had led respectable and industrious lives, they did not desire that their inquiry should preclude the future consideration of any plan which might thereafter be proposed and be free from the objections which had prevented the adoption of the schemes submitted to them.

A Minority Report was made by Mr. Chamberlain and others, on the ground that the recommendations of the Royal Commissioners were inadequate and did not proportionately represent public opinion. It proposed that the question should be remitted to a small special Commission, with a view to the careful examination, in an impartial and scientific spirit, of the complicated technical details of all the various schemes, and the construction, if possible, of a practicable scheme.

The Royal Commission having failed to recommend any solution of the problem, the subject of State-aided Pensions continued to be much discussed among the members of Friendly Societies, especially among those whose finances had become somewhat embarrassed by the difficulty of enforcing a distinction between the sickness provided for by their

contributions and the infirmity of old age, a distinction not taken into account when the Societies were founded. The increasing burden of local taxation led many rate-payers to think that State assistance might be employed in relieving local burdens.

Committee of Experts to Consider Various Old Age Pension Schemes, 1896.—During the Parliamentary session of 1897 Lord Salisbury's Government decided to submit the question to a Committee of Experts, of which Lord Rothschild was appointed Chairman. The Committee included three Fellows of the Institute of Actuaries, Messrs. A. J. Finlaison, C. B., George King, and A. W. Watson, and the reference to it was as follows: "To consider any schemes that may be submitted to them for encouraging the industrial population, by State Aid or otherwise, to make provision for old age; and to report whether they can recommend the adoption of any proposals of the kind, either based upon, or independent of, such schemes, with special regard, in the case of any proposals of which they may approve, to their cost and probable financial results to the Exchequer and to local rates, their effect in promoting habits of thrift and self-reliance, their influence on the prosperity of the Friendly Societies, and the possibility of securing the coöperation of these institutions in their practical working."

At the commencement of its proceedings more than one hundred schemes were submitted to the Committee, but it was decided that the terms of reference precluded the recommendation of any scheme (1) based on compulsion, as contrasted with encouragement; (2) confined to members of Friendly Societies or other cognate organizations, as distinguished from the industrial population generally; or (3) requiring no provision by the pensioners, and they therefore excluded all schemes (1) involving compulsory contribution toward a pension fund, either by way of the German method of deduction by employers from wages assisted by contributions levied on employers, or by way of an annual, or single, payment made by all young persons before a certain age, and accumulated at compound interest; and (2) schemes providing a universal grant or pension to all persons attaining a certain age without requiring any direct contribution from them or examination of their merits and their means.

In the necessarily narrow limits of the present paper, it is impossible to give details of the numerous schemes examined by the Committee. They may be divided into two groups: (1) Schemes providing special facilities and encouragement to voluntary insurance against old age, with material assistance from the State; and (2) schemes providing State Aid toward Old Age Pensions for members of Friendly Societies. Some of these proposed that members of Friendly Societies, as such, should, on arriving at a certain age, receive pensions from the public funds, while others proposed that pensioners should receive part of their pension from their Society, and the rest from public funds.

After careful examination of all the schemes that seemed worthy of attention, the Committee of Experts was reluctantly compelled to report "that there was not one of them, whatever its particular merits, which would not ultimately injure rather than serve the best interests of the industrial population." They also found that the greater number of the schemes were open to much objection on the ground that they would be of no advantage to the industrial population for a long period of years, and that they would involve the accumulation of great funds in the hands of the State to provide for distant and uncertain liabilities. The Committee further reported that, "only very slowly, and with very great

reluctance, they were forced to the conclusion" that none of the schemes submitted would attain the objects that the Government had in view, and that they were "unable, after repeated attempts, to devise any proposal free from grave inherent disadvantages."

Select Committee (Mr. Chaplin's) to Consider Bills Then Before Parliament, 1899.—In the early part of the year 1899 a Select Committee was appointed " to consider and report upon the best means of improving the condition of the Aged Deserving Poor, and of providing for those of them who are helpless and infirm; and to inquire whether any of the Bills dealing with Old Age Pensions, and submitted to Parliament during the present Session, can with advantage be adopted, either with or without amendment." The Chairman was the Rt. Hon. Henry Chaplin, M.P., at that time a member of the Cabinet as President of the Local Government Board. Several gentlemen well acquainted with the practical working of the Poor Laws and various important charitable schemes were called as witnesses, and among them, Mr. J. S. Davy, one of the General Inspectors of the Local Government Board, who had previously investigated various Continental Old Age Pension schemes, and especially the system which had for some years been in operation in Denmark. The Select Committee had also before it the evidence given to the Royal Commission and to the Pension scheme as distinct as possible, the Select Committee recommended that the pension should be awarded in each Union by a Committee of not less than six or more than twelve members, appointed by the Guardians from their own number in the first instance, with other members added, and a majority of the Committee were to be members of the Board of Guardians. The pension was to be paid through the medium of the Post-Office. The Select Committee also considered the amendment of the Poor Law which would be necessary unless any Old Age Pension scheme was to be incomplete, and leave many of the old deserving poor without improvement in their lot; but this part of the Report is beyond the limits of the present paper.

Departmental Committee to Consider Financial Aspects of Question, 1899.—The financial aspects of the scheme were referred on August 15, 1899, to a Departmental Committee, which reported on January 9, 1900. The Chairman of this Committee was Sir Edward W. Hamilton, K.C.B., then Assistant Secretary of the Treasury, and one of its members was Mr. E. W. Brabrook, to whose valuable Report to this Congress allusion has already been made.

The Committee endeavored to supplement the want of general information by instituting local inquiries, and consulted such officials as were competent to give assistance. Their financial estimates were based on certain hypotheses as to the probable number of recipients of pensions according as the commencing age was to be sixty-five, seventy, or seventy-five, and they assumed that the average pension would be 6*s.* a week in England and 5*s.* 6*d.* a week in Scotland and Ireland. They estimated not only the initial cost, but also the probable cost in the years 1911 and 1921, and the following Table gives the results at which they arrived.

The Committee was of opinion that their estimates, although based on a series of hypotheses, gave a fairly approximate idea of the financial aspects of the question, but they emphasized "the incalculable and, in their opinion, certain results" of the establishment of a pension scheme which would tend either to bring down to the pensionable level those who are now above it, or to raise up to it those who are now below it, which would thus swell the pensionable list from above as well as from below. They pointed out (1) the inevitable tendency to reduce the

TABLE

On the Assumption that the Pensionable Age would be

	65 years			70 years			75 years		
	In 1901	In 1911	In 1921	In 1901	In 1911	In 1921	In 1901	In 1911	In 1921
(1) Estimated number of persons over pensionable age	2,016,000	2,231,000	2,467,000	1,215,000	1,318,000	1,456,000	616,000	653,000	728,000
(2) Deductions:									
(1) For those with means over 10/- a week...	741,000	821,000	907,000	381,000	412,000	456,000	169,000	179,000	200,000
(2) For paupers.....	515,000	431,000	319,000	400,000	328,000	239,000	233,000	188,000	135,000
(3) For aliens, criminals and pauper lunatics.	32,000	41,000	51,000	16,000	21,000	27,000	8,000	10,000	12,000
(4) For inability to comply with thrift test....	73,000	94,000	119,000	42,000	56,000	73,000	21,000	28,000	39,000
Total deductions.....	1,361,000	1,387,000	1,396,000	839,000	817,000	795,000	431,000	405,000	386,000
(3) Estimated number of pensionable persons.....	655,000	844,000	1,071,000	376,000	501,000	661,000	185,000	248,000	342,000
	£	£	£	£	£	£	£	£	£
(4) Estimated cost.....	9,976,000	12,890,000	15,397,000	5,710,000	7,636,000	10,104,000	2,808,000	3,777,000	5,225,000
(5) Addition for administrative expenses.....	299,000	386,000	491,000	228,000	306,000	404,000	141,000	189,000	261,000
(6) Total estimated cost.....	10,275,000	13,276,000	16,888,000	5,938,000	7,942,000	10,508,000	2,949,000	3,966,000	5,486,000
(7) Saving of outdoor relief charge	.....	619,000	1,239,000	.....	481,000	966,000	.....	278,000	558,000
Net aggregate cost....	10,275,000	12,657,000	15,649,000	5,938,000	7,461,000	9,542,000	2,949,000	3,688,000	4,928,000
In round figures.....	10,300,000	12,650,000	15,650,000	5,950,000	7,450,000	9,550,000	2,950,000	3,700,000	4,950,000

wages and pensions of the aged employees; (2) the probable falling off of the contributions of children and other relations toward the support of old people; (3) the advantage to persons whose incomes are just over the border line of 10*s.* a week of understating their receipts or assigning away portions of their incomes or properties; (4) the falling off of the charitable subscriptions of the well to do; and (5) the possibility of the prolongation of life in improved and improving conditions of existence.

Question Discussed by Workmen's Organizations, 1900-1902.—During the last three years Bills have been introduced into Parliament and various Workmen's organizations have continued to discuss the subject, and the opposition of the Friendly Societies, which has throughout been so marked as to seem almost insurmountable, would appear to be giving way. The National Conference of Friendly Societies, which may be described as the representative body of the great Friendly Societies, which at their annual meeting in March, 1900, rejected a resolution in favor of a pension of 5*s.* weekly after age sixty-five for all members of Friendly Societies, in March, 1902, adopted one recommending a State pension to all thrifty and deserving persons of sixty-five unable to work and in need, the scheme to involve no disability of citizenship, and the cost to be provided without interference with the funds of Friendly Societies. A Committee was appointed to prepare a scheme for submission to the Societies represented at the Conference. The result of their labors was in March last still under consideration, and will be voted upon at a special General Meeting to be held in the autumn of the current year.

At a Conference convened jointly by the Trades Union Congress and the Coöperative Union Congress, held in London in January, 1902, resolutions were adopted in favor of universal pensions of at least 5*s.* a week for all citizens, male and female, on attaining age sixty, the entire cost being contributed by the State and met entirely by means of Imperial Taxation.

Mr. Chamberlain, whose scheme has already been mentioned, and who, more than any other public man, has identified his name with the problem, in an address to the National Independent Order of Odd Fellows at Birmingham on May 29, 1901, made an appeal to the officials of the great Friendly Societies to take the matter up. He said that: "If the officials of the Societies, which have with great skill and capacity worked out the great problems of sickness and death, will put their heads together to work out some system of old age pensions, in which assistance by the State at a fixed age might be secured to those who had contributed toward it, I believe they would do a great deal toward solving the question of old age sickness." Last year, however, on September 3, 1902, he wrote to a correspondent that "as long as extravagant expectations prevail of what is possible, and as long as the Friendly Societies continue divided on the question, I do not see how any Government can hope to deal satisfactorily with the question. If there had been any general acceptance of the scheme put forward by the Parliamentary Committee some years ago, that plan might have been law before now, and would have afforded useful experience. But the unreasonable views expressed by the Trades Union Congress and the partisan bitterness with which they denounce all other proposals, do not augur well for the spirit in which a moderate and practicable scheme would be received."

Bills and Debates in Parliament, 1903.—On May 22, 1903, very important discussions took place in both Houses of Parliament with reference to proposed methods for the improvement of the condition of the Aged Poor. In the House of Lords, a Bill embodying an important altera-

tion in the Poor Law, which had been twice unanimously passed by the House of Commons, was rejected by a small majority, but notice was given by the Earl of Northbrook of his intention to move for a Select Committee to consider the relation of Friendly Societies and other forms of thrift to Poor Law relief, and as to the desirability or otherwise of making alterations in the present law. In the House of Commons a Bill to provide Pensions for the Aged Deserving Poor was read a second time without a division and referred to a Select Committee together with two other Bills on the same subject. The Bill was framed on the report of Mr. Chaplin's Committee, but it is not probable that it will become law during 1903. In the course of the debate both Mr. Chaplin and Mr. Chamberlain spoke. Mr. Chaplin seemed to be much impressed by the financial burden which would be imposed on the country, as estimated by the Departmental Committee, and expressed the opinion that it was not a reason for putting Old Age Pensions entirely on one side, although it demanded a very cautious treatment of the subject. Mr. Chamberlain while admitting that the scheme of the unofficial Parliamentary Committee, generally called by his name, was quite dead, and stating that he was not entirely convinced that the estimates of the Departmental Committee were correct, nevertheless did not think that Old Age Pensions was a dead question, and was of opinion that it was not impossible to find the Funds. Mr. Walter Long, as the Minister for the time being responsible for the Department connected with Poor Law administration, supported the bill, declaring that the Government had no desire to shirk the responsibility which rested upon them, recognizing, however, the practical difficulties attending the scheme. Commenting on the debate, the "Times" considered that "it seems within the limits of possibility that it (i.e. the Bill) may next year make its reappearance as a Government measure. The aged poor must not be too sanguine, but their prospects of relief seem to be definitely more promising than they have been at any previous stage of the discussion."

Brief General Review.—In conclusion it may be said that at the present time (1) any scheme involving compulsory contributions would not be acceptable to the nation; (2) any scheme of universal pensions without contributions, such as that of Mr. Charles Booth, would be unnecessarily costly, and is not asked for by any preponderating volume of public opinion; (3) any scheme of State aid limited to any particular class of thrifty persons—such as that of Mr. Chamberlain for the members of Friendly Societies—would be inadequate, inasmuch as it would not include those who, through no fault of their own, are not able to make the necessary contributions to the Friendly Societies as required by the scheme; and (4) any scheme of pensions without contributions, even though limited to the deserving poor as under Mr. Chaplin's scheme, might involve many evils and would certainly entail a very large expenditure, for whatever scheme of pensions might be adopted, the retention of the existing (or a modified) Poor Law would still be necessary, with its costly administration.

The movement in favor of reforms has recently been gathering strength and great changes may be imminent, but it is difficult at the present moment to foretell whether these changes will be confined to improvements in the Poor Law, or whether they will result in the adoption of some form of State pension.

Postscript.—Since the above was written, the whole position of the problem has been much altered by the recent announcement by responsible Statesmen of their views as to the future fiscal arrangements of the

Country, and the solution may depend on the answer given by the Nation to their suggestions. If the contemplated modification of the British free trade principles be effected, it is difficult not to suppose that the resulting pension scheme may develop into something broader than was contemplated by Mr. Chaplin's Committee, although not perhaps so wide as the universal scheme of Mr. Booth. The collection of the necessary funds year by year by means of taxation would doubtless form a far better working basis than the German method of levying contributions and building up enormous reserves, but in the opinion of the writer—an opinion which he has held for many years—the wisest solution of the problem of the Aged Poor lies, not so much in any rigid Pension Scheme, as in a cautious and well-considered amendment both in the Poor Law itself, and in its practical administration.

If, as many fear, the ultimate effect of any large State Pension scheme would be to weaken the support given by the Working Classes to those great Provident Institutions which have been slowly and surely built up by their own self-reliant exertions—Institutions such as no other European nation can show—a fatal blow would have been dealt to that spirit of independence of and resentment to State leading-strings, which is so distinguishing a characteristic of the Anglo-Saxon race.

The writer yields to no one in his eager desire to promote by all means the alleviation (the removal if possible) of the sufferings of the less fortunate of our brethren, but he feels bound by the claims of truth as well as friendship to express his fears as to the dangers, as they appear to him, of those sentimental dreams of a Utopia in which pensions are to be the panacea for all the ills which beset old age.

> Who dares think one thing, and another tell,
> My heart detests him as the gates of hell.*

KURZE NOTIZ.

ALTER- UND ARBEITER-PENSIONEN IN GROSSBRITANNIEN UND IRLAND.

Von Ernest Woods.

1. Vorschläge für Alters-Versorgungen im 18. Jahrhundert.
2. Gründe für die Wiederaufnahme dieser Frage in der gegenwärtigen Zeit.
3. Des verstorbenen Canon Blackley's System einer zwangsweisen Versicherung, um in Krankheitsfällen Zahlung und im vorgerückten Alter die Versorgung zu erlangen.
4. Herrn Charles Booth's System für Universal-Alter-Versorgungen ohne Beisteuer.
5. Schema eines Parlaments-Comités für staatliche Versorgungen zu Gunsten derjenigen, welche freiwillig einen Theil der Kosten tragen.
6. Königliche Commission zwecks Beratung eines Gesetz-Entwurfes zur Hebung der Armut.
7. Comité von Sachverständigen zwecks Beratung verschiedener Alter-Versorgungs-Schemas. 1896.
8. Erwähltes Comité zur Durchsicht der im Parlamente vorliegenden Gesetz-Entwürfe. 1899.
9. Departement-Comité zur Behandlung der Frage vom finanziellen Gesichtspunkte. 1899.
10. Diskussionen von Arbeiter-Organisationen. 1900-1902.
11. Vorlagen und Debatten im Parlament. 1903.
12. Kurze, allgemeine Uebersicht.
13. Nachtrag.

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* "Iliad," Bk. ix., translated by Pope.

RÉSUMÉ.

PENSIONS DE RETRAITE ET PENSIONS D'OUVRIERS DANS LA GRANDE BRETAGNE ET EN IRLANDE.

PAR ERNEST WOODS.

1. Propositions de Pensions pour la vieillesse au 18e siècle.
2. Causes qui ont amené la récouverture de la question dans les temps modernes.
3. Projet de défunt Canon Blackley de rendre obligatoire les Assurances en cas de maladie et pour la vieillesse.
4. Projet de Mr. Charles Booth de Pensions Universelles pour la vieillesse sans contributions.
5. Projet d'un Comité du Parlement pour des Pensions de l'état en faveur de ceux qui contribueraient volontairement à une partie du coût.
6. Commission royale à l'effet de considérer un système de loi pour soulager le paupérisme. 1893.
7. Comité d'Experts à l'effet de considérer divers projets de Pension pour la vieillesse. 1896.
8. Comité choisi pour l'étude des Bills présentés au Parlement. 1899.
9. Comité Départemental pour étudier les aspects financiers de la question. 1899.
10. Discussions par les organisations ouvrières. 1900-1902.
11. Bills et débats au Parlement. 1903.
12. Courte revue générale.
13. Postscriptum.

ON THE GROWTH OF LIFE ASSURANCE IN JAPAN.

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GIICHIRO ASO,

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Reliable information on the subject of life assurance in Japan begins with the organization of the "Meiji Company" at the July of 1881. The progress of the business was at first slow, and it was not until 1888 that another new company had been established. Since that time, the number of the companies increased year by year, especially in 1896-97; the rates and conditions adopted by them being generally taken from European and American experiences. Meanwhile, there has been so keen competition amongst them, as to entail a very considerable expenditure. Moreover, many of those who have taken stock in new companies had neither the experience nor knowledge of the business. Such being the case, it is not strange that some companies tended to incur the financial difficulties in more or less degree. A strict government supervision became more and more necessary, and the Insurance Act was promulgated in 1899. As the result, some small and weak companies were forced by the government to stop the issue of new policies, as a means to lessen the financial troubles at least; and such circumstance tended to shake the public confidence in life assurance institutions. Not only the act has effectually prevented the formation of new companies of the "bubble" order, but the amalgamation or transfer of the business has been attempted, and the number of companies materially diminished. At the end of 1902, the total number of the policyholders in 25 companies was 815,041, the sum assured being 214,302,430 yen (yen nearly equals an American half-dollar). The average amount of policies is only 263 yen, being rather less than that in American industrial companies, and consequently the expense rates on the premium income are so high that it cannot be allowed to spend more. Again, there are some companies who get a larger proportion of questionable and undesirable risks, which is proved by the heavier mortality than the assumed. So are the things, and it need scarcely be said that present cultivators of the field must necessarily be careful, earnest and persistent, not to repeat past errors. Happily, the greater number of the companies have brought their affairs to a close before it was too late, and saved their policyholders the loss and disappointment painful to contemplate.

The rates of interest realized have been much higher than that in western countries, it being on the average 7 per cent. per annum; but there is a tendency to fall gradually in future.

Industrial business is not yet experienced at all, but some companies seem to have great mind to open its department and are preparing for the practical operations. We hope that class of the business shall be so popular and successful that it might prove a great factor in the volume of new policies.

Three American, two Canadian and one Scottish companies have extended the business into Japan in recent years, establishing branches and agencies here and there, and surprise was sometimes expressed that their development shall be more rapid as compared with the average in our offices, though less is now heard about it. At any rate, their progress in Japan seems to continue to be maintained.

In general, life assurance business in Japan could not hitherto obtain so good result as we wished to be, and on the other side there were many failures in some quarters; although its growth has been comparatively rapid. But seeing that more rational views on the business are beginning to prevail, it is not too much to say that it shall flourish and develop on sound basis. Also we hope our people to be more and more firm believers in the great protection which can be secured only by life assurance, the success of the native and foreign companies chiefly depending on them.

RÉSUMÉ.

LE DEVELOPPEMENT D'ASSURANCE SUR LA VIE AU JAPON.

PAR GIICHIRO ASO.

Quoique l'assurance sur la vie n'ait été introduite au Japon que depuis une vingtaine d'années, le nombre des compagnies s'est accrû rapidement durant les dernières années, et en conséquence de cette augmentation l'amalgame ou la fusion des affaires en est résultée parmi les plus petites et faibles compagnies.

A la fin de 1902 le nombre des porteurs de police de 25 compagnies était de 815,041, les sommes assurées se montaient à 214,302,400 yen, et heureusement la plus grande partie des compagnies fait des progrès constants.

Les affaires industrielles ne sont pas encore expérimentées au Japon, mais il y a quelques compagnies qui sont engagées à present dans des opérations pratiques.

Six compagnies étrangères vaquent aux affaires d'assurance qui s'agrandissent de plus en plus, et il semble que cet accroissement est continuel.

Pour être bref, les progrès de l'assurance sur la vie au Japon ont été rapides, —toute proportion gardée,—et nous espérons qu'il se développera de jour en jour, sans répétition des insuccès antérieurs.

KURZE NOTIZ.

DIE ENTWICKELUNG DER LEBENSVERSICHERUNG IN JAPAN.

VON GIICHIRO ASO.

Obgleich die Lebensversicherung erst seit ungefähr 25 Jahren in Japan festen Fuss gefasst hat, ist doch die Zahl der Lebensversicherungsanstalten während der letzten Jahre stark gewachsen, welches die Verschmelzung und geschäftliche Vereinigung vieler kleinerer und schwächerer Gesellschaften im Gefolge gehabt hat.

Ende 1902 betrug die Zahl der Policen-Inhaber in 25 Gesellschaften 815,041 mit einer Versicherungssumme von 214,302,400 Yen, und die Mehrzahl dieser Gesellschaften macht stetige Fortschritte.

Die Industrie in Japan ist noch ohne grosse Erfahrung, aber einige Versicherungsgesellschaften beginnen jetzt mit praktischen Versuchen nach dieser Richtung hin.

Sechs fremde Kompagnien sind eifrig bestrebt, ihre Geschäfte in Japan auszudehnen, und ihre Fortschritte scheinen dauernd zu sein.

Kurz, der Fortschritt der Lebensversicherung in Japan war ein verhältnismässig schneller, und wir hoffen, dass sich die Lebensversicherung von Jahr zu Jahr weiter ausdehnt,—ohne die früher vorgekommenen Falliten.

GROWTH OF ASSESSMENT INSURANCE IN JAPAN.

BY

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ORIGIN.

It appears to be a rather curious fact that our old country has never known any kind of insurance until very late. While we can trace the history of our country back to twenty-five hundred years ago, when our first Emperor ascended his throne, we cannot find out this institution at any time. It is rightly said that Japan had been so far secluded from other countries and shut up herself till she recently came in contact with Western nations, that even the widespreading character of insurance could not find its way into this country. But beside this relative cause, we can here disclose some reasonable facts that prevented its national growth in Japan.

First, it comes from the geographical conditions of our country. Japan consists of an immense number of islands, of which the main island, considered as Japan proper from olden times, extends itself from northeast to southwest in the length of about 1,000 miles, and the narrowest breadth of some 70 miles. Moreover, enormous mountain ranges run parallel, and in some parts perpendicular, to the coasts, making the inland communication extremely difficult; until quite recent time, i.e. some thirty years ago, it took people over thirteen days to travel between Tokio and Kioto, which we can do now in thirteen hours. The whole land was divided into numerous provinces according to the natural boundaries, and a province again into many small towns and villages with very insufficient means of connection with one another. This state of things was quite unfit to the growth of insurance, which is based on the principle of the division of risk and which requires a wider sphere of community in its practice.

Secondly, we may consider it politically. Feudalism flourished there for a long time. The whole country was divided and governed by hundreds of feudal lords. Each of them kept a number of vassals who served their lords with hereditary fidelity, and whom the lords protected in return in case of emergencies.

Thirdly, this feudal relation was maintained likewise in other classes of the people, as farmer, artisan, and merchant; servants and apprentices offered the premium of their labor and faithfulness to their master, while the latter gave them the insurance of warm protection in return. A strict family system prevailed also, and the duty of its members to help one another was held as important as morality itself. This may be called the social cause.

Fourthly, in this shut-up country, the economical condition was very favorable, the climate moderate, the soil fertile, and the struggle for life was formerly far more slow and inactive than it is now, and this is also a reason why insurance fell behind many other institutions.

Enterprises resembling insurance have been existing in different forms at different periods, as for instance, contribution of corn to common store to meet famine, clubs and associations affording sick relief, funeral cost, trade capital, traveling expense, etc. The idea of relieving poor and miserables with aggregate force was well developed throughout all ages, and it is our universal custom, when one of our relatives or friends die, to present money to his family as a token of consolation. But these are not what we call insurance.

Marine insurance was first introduced to Japan in 1879; life followed it in 1881, a company having been established after the model of English companies, and they soon enjoyed a rapid progress. I shall not here mention the development of insurance in general; for it is not expected in this paper. Suffice to say, life insurance got a special popularity of the public, or rather of the undertaker, and after no more than ten years some questionable companies already arose here and there.

Assessment insurance had also its origin at this period; but whether it is an improper imitation of the regular life insurance or a modification of the old relief clubs and associations, is almost impossible to decide. Some argue that the "Mutual Relief Association of Five Hundred Men," established 1880 at Tokio, is the origin of life insurance in Japan, based on assessment plan. It was a charitable society of benevolent individuals for the welfare of their heirs. Members are bound to contribute each two *yen* at the death of a member, whose successor thus receives 1,000 *yen* from the fund. If a member dies, his heir takes his place. This association continued till 1893 when it was amalgamated by a regular life insurance company. But I do not here consider this association as the so-called assessment insurance company.

Development.

From the latter half of 1893, when about ten regular life offices were striving for business each with effort and result, assessment companies began to get on foot in some local districts, and at the end of the same year we could reckon about forty of them. It soon spread over like infection to the neighboring provinces and at the end of 1895 they increased in number to more than two hundred. Their names bear an interesting resemblance to those of bubble companies which existed once in England; for example, Mutual Defender, Economical, Charity, Beneficient Life, Loyalty, etc. They understood the weak points of human feeling, they pretended to supply insurance to the lower public most cheaply and in the most convenient way, and obtained a wonderful degree of popularity for a time. But they went down in a year or two, owing partly to insolvency and bad management, and partly by the order of civil courts.

If we inquire into the causes of springing up of assessment companies, we may count them as follows:

(1) Prevalence of life insurance inducing its improper imitation.

(2) Miscomprehension of the idea and organization of insurance.

(3) Absence of the insurance legislation at that time.

(4) Assessment insurance believed to necessitate no capital and no reserve.

Although they enjoyed but a little bit of time, damages occurred to the person of the assured, to the regular branch of insurance, and to the welfare of the society were by no means trifling; they destroyed property, swept away the result of self-denial, enhanced the bitterness of

widows and orphans, corrupted morality, and exceedingly spoiled the confidence of the public put on the insurance institution in general.

Fear and agitation followed, and appeals were made to the Parliament to enact a law for the prevention of such injurious business. The government was no less perplexed, and the Minister of Agriculture and Commerce, who was, and now is, taking its superintendence in his hand, called attention of the Minister of Justice, who in turn ordered the supervisors of the local courts to pay a keener overseeing on assessment companies and their kindred institutions.

From that time assessment insurance gradually lost its standing in our country, and only a small number of companies in that business seem to exist at the present time in remote regions where the people are comparatively ignorant and the judicial and administrative supervision is often beyond its reach. Most of them bear no more the title of *insurance* and call themselves mutual benefit companies, marriage-fund companies, and the like. Undoubtedly they rise with imperfect organization and fail by it too, and we are expecting to obtain a law by which we can perhaps get rid of their dangerous influence.

Organization.

Assessment insurance companies were neither mutual nor shareholders' joint-stock companies, because the former was allowed for the first time by the "Law of Insurance Undertaking" of 1900, and, as the latter needed the governmental permission in establishing it, the undertaker was wise enough to foresee that such an ambiguous business as his should be difficult to get the approval of the government. They were usually companies with limited liabilities whose small nominal capital was seldom paid up. The assured are divided into many groups, each consisting of a certain fixed number varying from 1000 to 3000 or more. Each member must pay an entrance fee of usually 50 *sen*, and is obligated to put out a sum of money, improperly called premium, when one of the members belonging to his group dies, falls sick, etc.

The company gathers the premium, and deducting from the amount twenty or thirty per cent., which together with the entrance fee constitutes the company's income, pays the rest to the beneficiary. In case the group is not full, the sum to be paid to the beneficiary must be reduced proportionally to the existing number of the members.

The premium is sometimes arranged according to the ages of the assured, but very imperfectly of course, for they do not understand what mortality table is. As one instance, I describe here the premium tariff of an assessment company, in which each 5,000 members form a group.

Age	Premium (*In Sen*)	Sum Assured (*In Yen*)
15-20	1.0	80
21-25	1.3	80
26-30	1.6	80
31-35	2.0	80
36-40	2.4	80
41-45	2.8	80
46-50	3.3	80
51-55	3.8	80
56-60	4.5	80
61-65	5.5	80

(100 *sen* = 1 *yen*; 2 *yen* = 1 dollar.)

If a member dies within three months after entering, his heir can raise no claim. But as there is no medical examination practiced, un-

healthy lives naturally steal in, in a large mass, and consequently healthy and bona fide members must be unreasonably heavily burdened.

Moreover, in this system of insurance the company gains by the death of the member quite contrary to the ordinary insurance; the more the death, the more the profit of the company. From this singular result, intrigues were very often played by the managers of the companies; they summoned up crowds of poor and feeble people in order to gather an enormous sum of money by their soon following death.

Objects.

The objects of our assessment insurance business may be stated as follows:

(1) To provide the expenses of birth and nourishing of babies.
(2) To indemnify the loss of the born dead.
(3) To provide marriage fund.
(4) To provide education fund.
(5) To provide sick pay.
(6) To provide funeral expenses and relief of widows and orphans.
(7) To provide commemoration fund.
(8) To provide the expense of traveling.
(9) Military service insurance.
(10) To indemnify the loss by fire and storm.
(11) To eliminate the loss of horses and cattle.

Were these objects well attained, people should be greatly benefited and the country should be no less graced; but assessment insurance could not do it, and, in concluding this paper, I feel extremely sorry that, in fulfilling my duty of reporting the growth of assessment insurance in our country, I am thus compelled to describe the history of its failure.

KURZE NOTIZ.

DAS WACHSTHUM DER ANTHEIL-VERSICHERUNG IN JAPAN.

Von Kiyosuke Awadzu.

1. Japan, obgleich ein sehr altes Land, hat niemals irgend welche Art von Versicherung gekannt, bis solche kürzlich vom Westen her eingeführt wurde. Man kann die Gründe hierfür vom geographischen, politischen, gesellschaftlichen und ökonomischen Standpunkt betrachten.

2. Unternehmungen, ähnlich einer Versicherung, haben natürlich zu verschiedenen Zeiten in mannigfaltiger Form existiert, wie z. B. Vereine und Gesellschaften, welche Unterstützungen in Krankheitsfällen gewährten, oder Begräbniss-Unkosten, Geschäfts-Kapital, Reisespesen, u. s. w.

3. Antheil-Versicherung wurde zuerst im Beginne der zweiten Hälfte des Jahres 1893 eingeführt. Ob dieselbe ihren Ursprung oben erwähnten Vereinen oder regulären Lebensversicherungs-Gesellschaften verdankt, ist schwierig zu entscheiden. Vielleicht ist sie eine Vereinigung aus beiden.

4. Nach kurzer Zeit nahm die Anzahl von Antheil-Versicherungs-Gesellschaften so weit zu, dass sie mehr als zweihundert erreichte, diese fallierten jedoch all in einem oder zwei Jahren, und die Geschichte der Antheil-Versicherung in Japan weist nichts weiter auf, als die Beschreibung ihres Verfalles.

5. Schliesslich habe ich noch ein paar Worte über die Einrichtung der Gesellschaften hinzugefügt mit Rücksicht auf das Landes-Gesetz, Bedingungen der Policen, Prämien-Tarif und die verschiedenen Arten des versicherten Risikos.

RÉSUMÉ.

LA CROISSANCE DE L'ASSURANCE PAR COTISATION AU JAPON.

Par Kiyosuke Awadzu.

1. Le Japon, bien qu'un très vieux pays, n'avait jamais connu aucune forme d'assurance jusqu'à leur introduction de l'Occident. Nous en considérons les causes aux différents points de vue géographique, politique, social et économique.

2. Des entreprises ressemblant à des assurances ont naturellement existé à différentes périodes sous différentes formes, telles que clubs et associations fournissant des secours en cas de maladie, le coût des funérailles, des capitaux de professions, des frais de voyage, etc.

3. C'est durant la seconde partie de l'année 1893 que les assurances à cotisation ont pris naissance. Il est difficile de décider si elles doivent leur existence aux clubs mentionnés ci-dessus ou aux compagnies régulières d'assurance sur la vie. C'est peut-être à une combinaison des deux.

4. En peu de temps le nombre des compagnies d'assurance à cotisation augmenta jusqu'à plus de deux cents, mais toutes firent faillite après une année ou deux de sorte que l'histoire des compagnies d'assurance à cotisation au Japon n'est autre chose que la description de leur insuccès.

5. Enfin je décris en peu de mots la nature légale des compagnies, les conditions de leurs polices, le tarif des primes et les différentes sortes de risques assurés.

REPORT FOR THE UNITED STATES OF AMERICA ON THE GROWTH AND PROGRESS OF INSTITUTIONS AND CONDITIONS REQUIRING ACTUARIAL ADVICE.

The institutions referred to are particularly those affording life insurance, accident and liability insurance, health insurance, pure endowments, annuities, workingmen's pensions, and such like benefits.

BY

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The branches of insurance within the purview of this report are those providing against contingencies affecting the human body—as distinguished from those covering substances and property, such as fire and marine insurance, title insurance, etc. In the former departments of insurance it is believed that the companies located in the United States of America now carry a far larger amount of risk than those in all the rest of the world together. The life insurance now in force (January 1, 1903) in the regular life insurance companies of the United States, *excluding* assessment and fraternal life insurance organizations, exceeds $10,500,000,000,* while that carried in similar companies in the rest of the world appears to be under $9,000,000,000. A similar comparison for the other forms of insurance cannot be made for lack of complete foreign statistics, but these figures seem to justify the above statement. It therefore would seem proper, in view of the vastness of the theme, that we do not limit our considerations to the growth and progress made within the geographical limits and during the political history of the United States as a nation. The United States may be said to be a composite and transplanted nation, so that the history of its people and of its insurance institutions really begins back in those countries from which came the progenitors of its inhabitants. The nation, like some great tree —metaphorically—has roots far away from its trunk, and such is partly true of its institutions.

The development of the branches of insurance stated in the title was one of the most, if not the very most, important results of the reawakening of the mind of the world from the darkness of the Middle Ages. The same mental energy and enterprise that in visible things led to the discovery of America and the circumnavigation of the globe, was seen in the development of the calculus and the discovery of the laws of gravitation, chemistry, and electricity—by which man after getting a grasp upon the whole world's surface began to apprehend all underneath and all overhead—even weighing the heavenly bodies. This same spirit led man to endeavor to do what had never before been attempted—that

* This amount does not include any additional sum on account of supplementary endowment contracts of which it is believed the United States companies have a greater proportion than is found elsewhere. (See the section on pure endowments.

is, to provide some mitigation of the calamitous results of death, accident, and disease to which we are still exposed, despite all our ability and knowledge. The spirit of the dauntless pioneers, who founded this country, was seen in the growth of its insurance institutions, when once the idea of mutual help, brought with them, began to germinate.

Insurance in various forms seems to have been practiced from the earliest ages of which we have any record; and probably some phase of it existed before history began to be written at all, but not until about two hundred years ago, or long after the American colonies were founded, did calculations with regard to life and other contingencies begin to become worthy of designation as a science. The first known writing upon the theory of probability was three hundred years ago, by the celebrated astronomer, Galileo. During the next century Pascal studied the subject, also Bernoulli and Leibnitz, and, to a slight extent, Newton. Though many of our more distant ancestors doubtless thought deeply upon the subject of risk and probability, as well as upon many other profound matters, there was, nevertheless, such an utter lack of reliable statistics, that they must have felt it quite useless to attempt definite calculations for practical uses. The premiums charged for the insurances effected in those days were merely the outcome of bargaining between the insurer and the insured—with little, if any, scientific or statistical basis.

The rise and growth of insurance institutions among a people depend upon its social conditions—degree of civilization and density of population. Before the ancestors of the people of the United States migrated to America they resided in thickly populated European countries, where the insurance idea could readily crystallize in friendly and mutual aid societies, which, in the course of centuries, began to take the form of regular corporations, the first for life insurance being the Amicable, founded in 1706, followed by the Union, 1714, London Assurance Corporation, and also Royal Exchange, 1720. None of these companies, however, had tables based on scientific calculations—the first to have such being the Equitable, established 1762.

While insurance societies were thus developing among cognate races in the Old World, the idea of mutual help, which went with the emigrants to the New World, had not remained dormant, for in 1759, or three years before the English Equitable, a society had been formed to insure Presbyterian ministers. This organization, known as the Presbyterian Ministers' Fund, is described fully in a paper by Robert P. Field, Transactions A. S. A., vol. i., page 79, and appears to have had some scientific basis.

During the colonial period and during the earlier decades of the United States the people were mostly farmers, and there was thus less occasion and opportunity for the growth of insurance than among the more diversified communities of the Old World. In an agricultural community, though the death of the father of the family would be felt as a severe blow, it would not generally leave them without means of subsistence, as the wife or some of the children would probably be able to operate the farm, and provide the simple needs of life in those early days. Even among American townspeople, fifty to one hundred years ago, the loss of the breadwinner was not generally such a heavy blow as it afterwards became, for life then was much less artificial than now. The need of life insurance was thus felt much less than now, and the people were naturally less willing to pay cash for it.

Sparseness of population in America also tended to retard the growth of mutual insurance associations, as a widely scattered population does not readily combine for common objects. Thus in the United States,

while institutions giving the simpler forms of insurance, viz., fire and marine, were founded at an early day, because the need for them was felt and readily met by people in towns, corporations for life insurance, and its allied forms, accident insurance, health insurance, etc., were of slow and late growth.

The only American institution that did any mentionable amount of life insurance in the early days was the Presbyterian Ministers' Fund, already mentioned. Though some other organizations (principally trust companies) entered the life insurance field they either gave up business entirely, or soon discontinued the insurance departments of their business. Thus, so far as our people obtained life insurance prior to 1840, it was almost entirely in English companies, through their American agencies.

Although density of population in the Old World favored the formation of insurance organizations, the earlier development of actuarial science there was probably due less to insurance requirements than to the existence of many social conditions, which caused very large values to be dependent upon life contingencies. In those countries leases were granted to continue during the existence of one or more lives, and the value of these leaseholds could be estimated only by persons possessed of some actuarial knowledge. Under the law of entail immense estates were liable to go to any one of a number of persons on the failure of certain lives without issue. Many hundreds of persons thus had large pecuniary interests dependent upon life contingencies, and an actuary would be asked, for example, to compute the probability that a certain duke, sixty years old, would not marry and have issue, and that a person aged forty would survive not only the duke, but another person, thirty years old, who would be the next heir to the duke. Special actuarial knowledge was also required to decide as to the values of presentations of church livings in the Established Church, and to solve many other problems as to values dependent upon life. In the early days of life insurance the calculations connected with it were quite simple, and actuarial science would not have made such strides in England, had it not been for the numerous life contingency problems of the character above mentioned.

Among the people of the American Colonies, which later became the United States, however, owing to different social conditions, there was no such occasion for abstruse actuarial calculation. We had no church livings, very few annuities, and no entailment of estates, as in Europe. There was thus little demand for actuarial science outside of life insurance, and, as prior to 1860 only the simpler forms of life insurance had been introduced, there was little scope for the application of actuarial science in this country. The rapid growth of American life insurance after 1860, however, brought with it a great increase in the number of forms of insurance, many of them so complicated that only persons of considerable actuarial knowledge can make the calculations connected with them.

The computations required for policies may be said to be of four kinds, viz., those for the premiums, those for the reserve, those for determining the dividends, and those for the surrender values. Several United States life companies now issue within the United States and upon first class lives from five to six hundred different forms of policy—that is to say, each one of these five to six hundred contracts will require different actuarial treatment in one or more of the four respects above mentioned without reference to the age at issue. Several United States companies are now doing business nearly all over the world and have great

varieties of rates and policies for different countries, according to the climate and peculiarities of each; these foreign varieties by careful count amount to about four hundred and fifty. Some companies issue policies upon lives which are somewhat substandard, and the diversities in the contracts are very numerous; one large company can thus issue about five hundred and fifty different policies, American or foreign, upon a man aged, say, thirty-two. One large company doing business all over the world thus has—for each age at entry, as thirty-two—fully sixteen hundred varieties of contract, each differing in some important respect, so as to require different actuarial treatment. In reckoning variations in policies only essential actuarial differences are noted; no account is taken of such minor matters as whether premiums are paid annually, semi-annually, or quarterly.

At the last International Congress of Actuaries, Dr. Israel C. Pierson gave a concise and interesting sketch of the rise and progress of the regular life insurance companies of the United States, to which the reader is referred for many details that must be omitted here, as this report must deal with several other forms of insurance organizations as well as the so-called regular insurance companies. The term "regular" is applied to companies which collect fixed premiums at regular times under policies that provide for a definite payment at maturity and for which prescribed reserves must be held in accordance with State laws.

Prior to 1843, as we have seen, the life insurance issued in the United States seems to have been confined almost entirely to ministers, or to persons having life interests in estates in the charge of certain trust companies—and Dr. Pierson estimated that the total insurance in force about 1840 was only $1,250,000. On February 1, 1843, the Mutual Life Insurance Company of New York was organized to do insurance business exclusively among all insurable persons, and American life insurance corporations really date from this epoch. At the end of twelve months, February 1, 1844, this company's insurance in force was $1,611,718, and its assets $32,311. Allowing for the scattered amounts in force in the companies previously mentioned, we may estimate that on January 1, 1844, the life insurance in force was about $2,750,000, and the insurance assets not over $150,000, as much short-term insurance was done in those days. February 1, 1844, the New England Mutual issued its first policy, and after this one or more new companies started almost every year until 1870, when about eighty regular companies were in existence.

On January 1, 1903, or after sixty years of corporate activity, the insurance in force in regular companies had become $10,506,000,000 guaranteed by assets of $2,100,000,000. This magnificent growth is not the result of an uninterrupted triumphal progress. There was a period, 1873 to 1880, during which the number of companies and their aggregate insurance in force constantly diminished, but from 1880 the movement has been steadily onward, though it was not until January 1, 1887, that the lost ground was regained and the companies had more business in force than on January 1, 1873. The total assets of the companies, however, increased steadily except during the year 1877. The annual payment to policy-holders on death claims, endowments, dividend, and surrender values diminished somewhat irregularly from January 1, 1874 to 1882, after which they increased constantly, and in 1887 passed the maximum. These payments during the year just closed, 1902, aggregated over $199,700,000. The total payments to policy-holders during the sixty years have exceeded $3,120,000,000; comparing this with the insurance now in force, we see that, during the days of relatively small

things, the regular companies have already paid about $30 to every hundred they are now pledged to pay.

The above statements show the present status and the total progress in sixty years, but to understand the present conditions fully we must consider the *present rate of progress.* During the last year regular insurance increased by $1,806,000,000, or over 11 per cent. of the previous year's total; assets increased nearly $188,000,000, or over 20 per cent., and the payments to policy-holders increased over $12,000,000, or over 6½ per cent. In the latter respect the rate of increase for the year 1902 was rather less than usual, as the average annual increase during the period from 1898 to 1903 was over 8 per cent.

The setback that was shown in the aggregates for the business as a whole for many years after 1873 did not, however, occur in the history of each company individually, for several companies had been managed so conservatively and yet liberally, that they retained the confidence of their policy-holders, and, thus gaining that of the public, made a practically steady progress, despite the hard times that prevailed in all branches of business during the period 1873 to 1880.

In 1871, when about eighty regular companies were in existence in different parts of the country, a reduction began, and in 1881 only about forty were left in operation. The companies which ceased business were generally very small concerns, as was shown by the fact that for only one or two years did the aggregate assets of all the companies fall below previous years. Their failure to succeed was due partly to the general financial depression, then prevailing in the United States, partly to excessive competition, in some cases to bad management, and in several cases either to the harshness of the legal reserve laws in some States, or to their unjust administration. In many, if not in most cases, the retiring companies were reinsured by stronger ones and their policy-holders were thus protected.

For many years after 1881 the number of companies remained practically unchanged, but about 1890 new organizations began to spring up all over the country and the number now in existence is again about eighty. Most of these companies are quite small, for 80 per cent. of the grand total insurance in force is in thirteen companies, and four of these carry over one-half of the grand total.

Assessment Insurance Associations.—The rapid increase of the assets of the regular companies led many to believe that the premiums were unnecessarily high, and about 1865 this impression began to prompt the formation of associations which proposed to give insurance for less than half the usual charges. These societies were at first much encouraged by the low death rate that always characterizes new organizations, and which continued for several years owing to their rapidly increasing membership. The fallaciousness of their arguments was just beginning to be seen when the failure of many of the regular companies inspired distrust of the whole regular system, and gave the irregular organizations a further impetus, which lasted for many years. The unaccommodating and illiberal management of many of the regular companies prior to 1880 caused great dissatisfaction and also contributed much to the success of their rivals.

Assessment companies are peculiar to the United States (and Canada). They formerly claimed to be similar to the English friendly societies, whose long existence, they said, proved that they also would stand the test of time. Cornelius Walford stated at the time, however, that they had no real similarity to the English societies, which made periodical colections of fixed amounts and accumulated reserves, while

the original American organizations did not collect definite sums periodically nor accumulate reserves. The earliest organizations admitted persons of all ages—under, say, forty-five or fifty—on the same terms, and when a death occurred collected equally from each member without distinction as to age. The proceeds of this "assessment," less expenses, were paid to the family of the deceased. At first no definite amount was guaranteed, but only the proceeds of the collection, and it was generally provided that any excess of collection over a maximum sum, generally $1,000, should be held as a reserve against the next death. After a few years some of these coöperatives, as they were also called, began to see the injustice of admitting all—old and young—on the same terms, and began to assess for varying amounts according to the age at entry, but regardless of the age attained after entry. These societies made great boasts of scientific management and published bewildering tables prepared by their pseudo "actuaries" to prove their claims. At length, when the numbers of elderly members began to be large, it dawned upon the younger ones that it was grossly unjust to them to assess current death losses regardless of the attained ages of the survivors, and societies were then formed in which it was proposed to assess according to age attained, on what was sometimes called "the natural premium plan." The promoters of these organizations made great claims to scientific management, and in many cases were honest, but many were not, and juggled with figures and technical terms in a way that imposed upon vast numbers.

A large number of these assessment concerns were started—probably several thousand—for there were about two hundred and fifty located in one State alone. Some of them did not operate outside their own State, or even the neighboring counties, while a few spread all over the United States and even entered foreign countries.

Many of these companies were launched by mere adventurers, who took advantage of the laxity of the laws and the mania for "cheap insurance." The worst of these were known as "graveyard" companies, because they fostered speculative insurances upon persons on the brink of the grave. Pennsylvania was the principal scene of their operations, over two hundred such companies having been organized there despite the efforts of the State Insurance Commissioner; their career, however, was brief.* Another reprehensible side growth of the assessment plan was the insurance club system, by which a number of persons would insure their lives for the benefit of their survivors in the group. Thus ten men would each take policies of $1,000 each, and when the first died the proceeds of his policy were divided among the nine survivors; at the next death, $1,000 was divided among the remaining eight, and so on to the end, the last survivor having the right to name a beneficiary for his policy. This form of gambling also flourished particularly in Pennsylvania and existed much longer than the "graveyard" system.

Many assessment associations were organized by upright though ignorant men, but in a large proportion of cases these coöperatives merited the title of "co-duperatives," given them by Elizur Wright, for, in many cases, both managers and members refused to acknowledge the stern logic of actual experience until too late for their salvation. The managers of many companies, however, discovered their mistakes in time, and with more or less actuarial advice have in varying degrees improved their systems, until some of them are hardly distinguishable from regular companies, and a few have lately reincorporated as such.

* For a very interesting description of these companies, see "Insurance and Crime," published by the Putnams.

Along with the business companies on the assessment plan may be included the so-called Stipulated Premium Companies, as there is no definite line of demarcation and the distinction is only in name. The present number of assessment business organizations of all kinds is now only about seventy, and the insurance in force about $450,000,000, of which nearly 40 per cent. is in one association. The death claims reported as paid by all the above associations in the year 1902 were nearly $3,990,000.

In these associations, as well as in the fraternal orders described hereafter, all naturally goes well during a few decades, provided their management is economical and their membership increases steadily in a geometrical ratio; but after a while their very size becomes a source of danger, as it is no longer practicable to obtain a sufficient number of new and young members to keep down the average death rate, and then, unless their system is really scientific, the increase in the assessments causes dissatisfaction, loss of confidence, and in the end dissolution or reorganization.

Fraternal Societies.—Fraternal organizations for insurance purposes arose about the same time as the assessment companies, and employed the same insurance system. The principal difference between them is that the assessment companies employ agents to solicit business, and in general push their business very much the same as the regular companies, while the fraternal orders generally pay—or claim to pay—nothing to obtain members, relying on personal friendship and social influences instead. Then too, the control of assessment companies is generally in the hands of a small number of persons, while the fraternal orders aim at perfect mutuality, each member of a lodge having a vote in connection with its management and also in the selection of the delegate chosen to represent the lodge in the meeting of the council of the supreme lodge. These features have made them very popular; they have rapidly outstripped the business organizations and have become formidable competitors of the regular companies among all classes of people that do not carry large amounts of insurance.

Many of these societies have become sensible of the defects of their original systems and have sought actuarial advice, but very few have had the intelligence and courage to make thorough reforms, and some have adopted half-way measures, which will greatly complicate the problem of rectification hereafter. There are about one hundred and fifty of these societies in the United States, and they claim about $5,500,000,000 of insurance in force, of which over one-half is said to be in four immense organizations having lodges all over the country. The fraternals claim to have paid during 1902 death benefits amounting to $58,400,000.

As the fraternal societies and the coöperatives before described are practically similar in their insurance aspects, we may add their respective totals—which shows that on the assessment plan there are about two hundred and twenty organizations claiming $6,000,000,000 of insurance in force, and death payments during the year 1902 of nearly $62,400,000.

Accident Insurance.—This form of insurance, which arose in England about 1849, was not introduced into the United States until 1866, when it spread very rapidly; very many companies were organized, both on the regular and on the assessment plan, but a large proportion existed only for a few years. Several life insurance companies have established accident departments, and several casualty companies have added other branches of insurance to their business, so that there are

few pure accident companies. The scope for actuarial service in this connection is very slight.

There are nineteen regular companies carrying about $2,255,000,000 insurance, and there are about twenty-eight assessment companies carrying $540,000,000, so that the total accident insurance in force is about $2,800,000,000. During 1902 the regular companies paid claims (including some for sickness) amounting to $4,640,000, and the other societies paid nearly $740,000.

Liability Insurance.—This form of insurance may be considered as a branch of accident insurance, and differs from it only in the fact that a liability company makes contracts not with persons liable to be injured, but with the corporations or parties liable to be sued by injured persons. There are several branches of this kind of insurance; the most common —employers' liability—was begun in England about 1880 and in this country about 1890. Liability insurance—like accident—affords few opportunities for actuarial work.

There are eight companies doing this business, and their insurance in force amounts to $625,000,000. During 1902 they paid $2,640,000 to policy-holders. Some other kinds of liability insurance are included in the above totals, but separate statistics of such varieties have not been published.

Health Insurance.—This branch of insurance has been little developed in this country. The first company of which any record has been found was organized in Hartford in 1849, under the title of the Hartford Life and Health, but wound up its business in 1855. Other organizations started in various cities and soon closed up; and in 1875 the Prudential Friendly Society of Newark began issuing health insurance policies with scientifically prepared rates, but after three years abandoned this branch and devoted itself entirely to life insurance. Health insurance is now carried by several companies as a branch of accident insurance; the policies generally cover only a limited number of diseases and the rates are practically the same for all ages—the companies reserving a right to cancel policies. There are eight regular companies engaged in this business with insurance in force amounting to over $37,000,000. Much health insurance is included with accident insurance where both are covered by the same policy. The claims paid in 1902 are reported as $225,000, exclusive of some included along with accident payments.

There are besides about forty-three sick benefit associations scattered all over the United States, which claim to have an aggregate of nearly $63,000,000 insurance in force, and to have paid nearly $1,100,000 claims in 1902.

Pure Endowments and Annuities.—No companies except the regular life companies afford either of these benefits.* An annuity is really a series of pure endowments, and a policy providing solely for an endowment of a single sum on surviving a certain term is very rarely issued.

Policies combining pure endowment with term insurance have always been considered as single contracts and included among ordinary insurance totals, though in principle they are really two separate and complementary contracts. About one-fourth of the total insurance in the regular companies ($10,500,000,000) is on the endowment-assurance plan, so that these companies may be said to carry pure endowment in-

* Though none but regular companies now afford these benefits, there was a time when some assessment concerns entered the business and fully equalled the South Sea schemes in their promises; for full descriptions, see "Insurance and Crime" (Putnams) and the Massachusetts Ins. Report of 1892.

surance for about $2,600,000,000 in addition to the above sum, which would make their total obligations, under both primary and supplementary contracts, amount to about $13,000,000,000.

Though annuity business was the first life contingency operation in this country—the first organization, the Presbyterian Ministers' Fund, having been an annuity company exclusively—it grew very slowly until within the last twenty-five years. In 1877 the companies' receipts in purchase of annuities were only $260,000, and the annuities paid were only $220,000, but for the year 1902 the companies received $9,530,000 and paid out $3,500,000. The present rate of growth is very rapid, but irregular; the receipts for 1902 were only 15 per cent. more than in 1901, while the receipts in 1901 were nearly 40 per cent. more than in 1900. The annual premiums paid for deferred annuities are included in these totals. The larger portion of this business was done by the foreign agencies of American companies, but there is a steadily increasing demand for annuities in this country. Until lately annuities were of the simplest form, and almost entirely on single lives, but within a few years past more complicated forms of annuity have been issued, many involving two or more lives.

Workingmen's Pensions, Old Age Pensions, and Miscellaneous Benefits.—Neither the government of the United States nor that of any one of the States has provided any system for insuring or pensioning workingmen, though the federal government and several of the States have instituted systems of pensions for those attaining advanced age in various branches of service, for example the officers of the army and navy of the United States and the teachers in the public schools of several States.

Many of the great trade unions and business organizations have either insurance, or sick benefit departments, sometimes both, and in connection with some of these actuarial advice has been sought. Statistics are not now available as to the vast operations of all these associations, but a large amount of information can be obtained from the bulletins of the Department of Labor (Washington, D. C.), and particularly the following issues, viz., Numbers 8, 17, 19, 22, 31, and 37 (for copies of which the writer is under obligation to Hon. Carroll D. Wright, Commissioner, Washington, D. C.). Many of the great railway systems have formed relief departments and pension systems for their employees. The first to do so was the Baltimore and Ohio Railroad, which formed a relief department in May, 1880, and a pension department in 1884. The relief department of the company, by January 1, 1903, had paid its employees an aggregate of over $7,383,000, and the payments under the pension system had amounted to nearly $656,000; total membership, 37,500. The Pennsylvania Railroad adopted a relief department in 1886, and up to January 1, 1903, had paid a total of $9,885,000; membership, 70,307. It has a somewhat indefinite pension system, still in an experimental stage. The Chicago, Burlington and Quincy Railroad formed a relief department June, 1889, and by January 1, 1903, had paid its employees $3,329,000. It has no pension system. The "Chicago and Northwestern" established a pension system January 1, 1901, applying to all employees twenty years in service after attaining certain ages and under certain conditions; it has no relief department.

These are stated only as examples of what is being done by many railway systems. A number of other railway companies have not formed relief departments of their own, but have in many ways aided their em-

ployees to form insurance organizations among themselves, or to obtain insurance in regular insurance organizations.

The above remarks apply in some degree to some of the street railway systems in the principal cities, and also to many large manufacturing companies. For some of the above information regarding railways, I am indebted to Mr. Clayton C. Hall, of Baltimore, and to Mr. J. C. Bartlett, Superintendent of the Relief Department of the Burlington road.

Social Conditions Requiring Actuarial Service.—In the first part of this paper it was shown how social conditions in the Old World gave scope for actuarial work long before there was much demand in connection with life insurance, while the contrary was the case in the United States. Within the last half century, however, social conditions in the United States have altered considerably, and immense fortunes have been created, in connection with which there are life interests of such large amounts as to furnish ground for extended actuarial calculations, though the absence of entails will never allow the same field for actuarial employment as is found in the Old World. Actuarial service is sometimes required in connection with individual insurance policies, where single individuals are carrying large amounts of insurance, and wish independent advice.

In some States the recent imposition of inheritance taxes requires valuations of testamentary life interests, which are often quite complicated, and in many States the laws requiring annual valuations of life policies by the State insurance departments make a considerable demand for actuarial work outside of the companies' offices.

All things considered, it may be said that the corporations and the fraternities, as well as the social conditions in the United States, present a large field for actuarial service.

RÉSUMÉ.

RAPPORT POUR LES ÉTATS-UNIS D'AMÉRIQUE SUR LA CROISSANCE ET LE PROGRÈS DES INSTITUTIONS ET DES CONDITIONS QUI REQUIÈRENT L'AVIS D'ACTUAIRES.

PAR DAVID PARKS FACKLER.

Les institutions dont il est fait mention sont surtout celles qui font l'assurance sur la vie, l'assurance contre les accidents et couvrant la responsabilité des patrons, l'assurance contre les maladies, l'assurance mixte, les rentes viagères, les pensions ouvrières et autres bénéfices similaires.

Les assurances en force dans les compagnies régulières d'assurances sur la vie des États-Unis se montent à environ 10 milliards et demi de dollars ou beaucoup plus que la somme assurée par les compagnies régulières de toutes les autres nations du monde combinées. Dans ce chiffre ne sont pas comprises ce qu'on peut appeler les organisations irrégulières — compagnies à cotisations et sociétés de secours mutuels. La grandeur du thème ainsi que le fait que les États-Unis forment une nation composite, formée des descendants émigrants de plusieurs pays, rendent opportun de considérer ses institutions comme ayant leurs racines et leur origine dans une époque bien antérieure à l'existence politique des États-Unis. Les ancêtres du peuple des États-Unis apportèrent avec eux du vieux monde l'idée de secours mutuels qui est la base de l'assurance, et cette idée fructifia au nouveau monde dès que les circonstances devinrent favorables. Une organisation d'assurance fut formée dans la Colonie de Pennsylvanie, apparemment d'après une base à peu près scientifique en 1759, époque de quelques années antérieure à la fondation de l'Equitable anglaise, la première compagnie du vieux monde à avoir une base scientifique. Cette compagnie américaine ne délivrait de polices qu'aux ministres presbytériens, et ce n'est que plus de quatre-vingts ans plus tard

que des compagnies se fondèrent pour faire des affaires générales d'assurance sur la vie; les deux premières compagnies furent la Mutual Life Insurance Company de New York, fondée en 1843, et la New England Mutual Life Insurance Company de Boston, fondée en 1844.

C'est en 1860 que commença la croissanee rapide de l'assurance sur la vie américaine. Le progrès cependant ne fut pas uniforme, car il y eut une période de 14 ans, de 1873 à 1887, pendant laquelle nul progrès ne se manifesta. C'est à dire que les affaires rétrogradèrent pendant sept ans, de 1873 à 1880, et ne réparèrent leur pertes qu'en 1887, mais depuis 1880 le progrès a été continu.

La grande variété des contrats de vie émis par les compagnies américaines donne un vaste champ aux services des actuaires, bien qu'en dehors de l'assurance sur la vie il y ait moins d'étendue pour le travail des actuaires que dans certains pays du vieux monde. Une seule compagnie américaine émet, en tout, environ seize cent variétés de contrat aux États-Unis ou à l'étranger.

Les organisations d'assurance sur la vie à cotisations ou sociétés de secours mutuels sont au nombre d'environ deux cent vingt, accusant environ 6 milliards de dollars d'assurances en force. Les compagnies d'assurance contre les accidents, de toutes espèces, sont au nombre d'environ quarante-sept assurant environ 2,800,000,000 dollars. Il y a huit compagnies d'assurance pour la responsabilité pécuniaire des patrons qui assurent environ 625,000,000 dollars. Il y a environ cinquante et une compagnies d'assurances de tous genres contre les maladies qui assurent environ 100,000,000 dollars. On ne fait pas en pratique d'affaires de dotation pure en dehors de l'assurance mixte. Les affaires de rentes ont beaucoup augmenté durant les 25 dernières années; en 1902 les compagnies reçurent environ 9,500,000 dollars comme achats de rente et payèrent environ 3,500,000 dollars.

Il n'y a pas de pension de vieillesse gouvernementale pour les citoyens en général, excepté pour certaines branches de fonctionnaires. Beaucoup de compagnies de chemins de fer et d'organisations industrielles paient des pensions et fournissent des secours à leurs employés.

KURZE NOTIZ.

BERICHT FÜR DIE VEREINIGTEN STAATEN VON AMERIKA ÜBER DAS WACHSTHUM UND DEN ERFOLG DER INSTITUTE, UND BEDINGUNGEN, WELCHE DEN RATH DER STATISTIKER ERHEISCHEN.

Von David Parks Fackler.

Die in Betracht gezogenen Institute sind hauptsächlich die, welche sich mit Lebens-Versicherung, Unfall- und Verbindlichkeits-Versicherung, Gesundheits-Versicherung, reiner Ausstattungs-Versicherung, Leibrenten-Versicherung, Arbeiter-Pensionen und dergleichen befassen.

Die Versicherung in Kraft bei den gewöhnlichen Lebens-Versicherungs-Gesellschaften in den Vereinigten Staaten beläuft sich auf ungefähr $10,500,000,000, was die Summe der von den gewöhnlichen Gesellschaften aller anderen Nationen der ganzen Welt zusammengenommen betragenen Versicherungen bedeutend übersteigt. Dies rechnet nicht die sogenannten „irregulären" Organisationen ein, Antheil- und Zunft-Versicherungs-Gesellschaften. — Der Umfang des Gegenstands verbunden mit der Thatsache, dass die Vereinigten Staaten eine von den Abkömmlingen der Auswanderer mehrerer Länder zusammengesetzte Nation ist, giebt Raum zu der Ansicht, dass deren Institute ihren Ursprung und Anfang lange vor der Zeit haben, als die Vereinigten Staaten in politische Existenz traten. Die Vorfahren des Volkes der Vereinigten Staaten brachten von der alten Welt die Idee einer gegenseitigen Unterstützung mit sich, welche die Grundlage der Versicherung ist, und hat diese Idee in der neuen Welt Frucht getragen, sobald die Verhältnisse sich hierzu günstig gestalteten. Eine Versicherungs-Gesellschaft wurde in der Colonie von Pennsylvanien im Jahre 1759 gegründet, wie es scheint auf einer Art von wissenschaftlicher Basis, und dies geschah ein paar Jahre vor der Gründung der englischen Gesellschaft „Equitable," welche die erste war, die auf einer rein wissenschaftlichen Grundlage aufgebaut war. Diese amerikanische Gesellschaft beschränkte sich auf Versicherung von presbyterianischen Geistlichen, und erst mehr als 80 Jahre später entstanden Gesellschaften, die sich mit allgemeiner Lebens-Versicherung befassten; die beiden ersten dieser waren die „Mutual Life Insurance Company" von New York, welche anfing im Jahre 1843, und die „New England Mutual Life Insurance Company" von Boston, im Jahre 1844.

Das rapide Wachsthum der amerikanischen Lebens-Versicherung begann ungefähr im Jahre 1860. Doch war der Fortschritt nicht gleichförmig; da war eine Periode von 14 Jahren, von 1873 bis 1887, während welcher kein Fortschritt sichtbar ist. Das heisst, das Geschäft ging sieben Jahre lang, von 1873 bis 1880, zurück, und hat den Verlust nicht vor dem Jahre 1887 gutgemacht, doch von 1880 an ist der Fortschritt ein beständiger gewesen.

Die Mannigfaltigkeit von Lebens-Versicherungs-Kontrakten, die von den amerikanischen Gesellschaften abgeschlossen wurden, bot dem statistischen Dienst ein weites Feld, obwohl neben Lebens-Versicherung ein bedeutend geringerer Spielraum für die Thätigkeit der Statistiker ist, als in einigen Ländern der alten Welt. Eine amerikanische Gesellschaft giebt alles in allem genommen ungefähr 1600 verschiedene Kontrakte aus, in der Heimath und ausserhalb.

Die Antheil- und Zunft-Versicherungs-Gesellschaften zählen ungefähr 220, mit circa $6,000,000,000 in Kraft befindlicher Versicherungssumme. Die Unfall-Versicherungs-Gesellschaften aller Art zählen circa 47, Versicherungs-Betrag ungefähr $2,800,000,000. Es giebt 8 Gesellschaften für Verbindlichkeits-Versicherung mit ungefähr $625,000,000. Für Gesundheits-Versicherung giebt es circa 51 Gesellschaften aller Arten, mit einem Versicherungs-Betrage von circa $100,000,000.

Es giebt gewissermassen kein reines Ausstattungs-Geschäft abgesondert vom Versicherungswesen. Die Renten-Versicherung hat in den letzten 25 Jahren ganz bedeutend zugenommen, und im Jahre 1902 haben die Gesellschaften ungefähr $9,500,000 Ankaufsgeld für Renten empfangen und circa $3,500,000 ausgezahlt.

Es giebt keine staatlichen Alters-Pensionen für Bürger im Allgemeinen, nur für solche, die im Dienste der Regierung irgendwie thätig gewesen. Viele Eisenbahn- und industrielle Gesellschaften ertheilen Pensionen und Hilfsgelder an ihre Angestellten.

ON THE INSTRUCTION GIVEN IN CANADIAN UNIVERSITIES ON ACTUARIAL SUBJECTS.

BY

F. Sanderson, A.M, F.F.A.,
Actuary of the Canada Life Assurance Company.

It is only within the last few years that the profession of an Actuary has begun to become generally recognized in Canada. The formation of the Actuarial Society of America and the holding of examinations by the Institute of Actuaries, as well as by the first named Society, have been the main factors in bringing into prominence the existence of the Actuarial profession in the Dominion. But we still find otherwise intelligent people in the community who have no conception of what is meant by the term "Actuary." In view, therefore, of the comparatively short time since our profession has come to public notice in Canada, it is not surprising that there is not much to be said upon what the Universities are doing by way of instruction on Actuarial subjects, upon which question I am asked to report for Canada.

Naturally the importance of the study of Actuarial science has scarcely yet been crystallized into our university curricula and yet a beginning has been made, but before giving any particulars it might be well to mention the names of the principal universities in Canada.

1. In the Province of Ontario there is first of all the University of Toronto which is controlled by the Provincial Government, conducted on purely non-sectarial lines and granting degrees in Arts, Medicine, etc. Situated in Toronto also are Trinity University and McMaster University, representing the Anglican and Baptist bodies respectively and granting degrees in Arts and Theology, also Victoria University which is now affiliated with the University of Toronto and representing the Methodist body. In Kingston is Queen's University supported and controlled by the Presbyterian body.

2. In the Province of Quebec the chief seat of learning is McGill University situated at Montreal, founded by private bequest and incorporated as a University by Royal Charter in 1891. There is also Laval University situated at Montreal and representing the Roman Catholic body.

3. In the Maritime Provinces there is Dalhousie University at Halifax, Acadia at Wolfeville and King's University at Windsor, all more or less denominational seats of learning; while at Fredericton, N. B., is the University of New Brunswick.

4. In the Province of Manitoba there is the University of Manitoba situated at Winnipeg.

Of these Universities the only ones that appear to have directed special attention to Actuarial Studies are the University of Toronto and Trinity University (Toronto).

For several years Mr. Alfred Baker, M.A., the Mathematical Professor at the University of Toronto, has directed attention to certain phases of Actuarial science and the mathematical course in that Uni-

versity now takes up more fully than that of any other University in Canada subjects having a direct bearing on Actuarial study. In the first year's special course, in connection with advanced Algebra, the subject of Compound Interest is taken up together with Ordinary Annuities-Certain. In the second year a thorough course in Differential and Integral Calculus and Analytical Geometry lays the foundation for future Actuarial studies. In the fourth year the General Theory of Probability is studied including Inverse Probability, Expectation and ordinary problems bearing on these. Instruction is also given in the Method of Least Squares and problems in Local Probability, with application of Infinitesimal Calculus thereto. These studies in Probabilities, preceded by a thorough advanced course in the Calculus, form a fitting introduction to the subject of Life Annuities and Assurances, which are taken up in the fourth year. Such matters as Formation of Commutation Tables; Formulæ for Ordinary, Temporary and Deferred Annuities; Reversions, Survivorships, and Determination of Single and Annual Premiums for usual Insurance Policies, Valuation of various forms of Policies, are discussed, and an effort is made to familiarize the student with the Actuarial Tables most commonly used, their formation and terminology.

In the year 1900 Professor M. A. McKenzie of Trinity University began a course of special lectures at that University upon Actuarial Subjects. These lectures are outside the ordinary Mathematical course and confined to a few Honor Mathematical men and a few out-of-college students. Professor McKenzie is himself an Associate by Examination of the Institute of Actuaries and the following statement indicates the range of work taken up in this connection.

1. The Theory of Interest and Discount as applied to Annuities-Certain, Bonds, Debentures, etc. (Text Books—King's Theory of Finance and Institute of Actuaries Text Book I).

2. The Mathematical Theory of Life Contingencies excluding the formation of Life Tables (Text Book—Institute of Actuaries Text Book II).

A good deal of time is spent on problems taken from past Examination Papers of the Institute of Actuaries, many of these having been worked out to illustrate the Theory. Some lectures are also given on the Principles and Use of the Calculus of Finite Differences. These lectures have been continued since the year 1900, although the number of students taking advantage of them does not appear to be very large, but the attention already given by the University authorities shows their appreciation of the importance of Actuarial science.

It may be worth mentioning that graduates of Canadian Universities are gradually finding their way into the Actuarial Departments of life assurance companies as well as into the Government Insurance Department. When the Dominion Insurance Department was first instituted about 1875 the Professor of Mathematics at Toronto University—Professor Cherriman, M.A. (Cantab,)—was selected to fill the important position of Superintendent. The Actuary of the Insurance Department is also a graduate of the same University, having won special academic distinction in Mathematics. He is also a Fellow of the Institute of Actuaries. The present Superintendent of Insurance is likewise a graduate of Toronto University.

Some 15 graduates of Canadian Universities are now found in the Actuarial Departments of the different Life Offices—some occupying official positions and others as Actuarial assistants.

RÉSUMÉ.

INSTRUCTION DONNEÉ DANS LES UNIVERSITÉS CANADIENNES SUR LES SUJETS TRAITÉS PAR LES ACTUAIRES.

Par F. Sanderson.

Ce n'est que peu, toute proportion gardée, qu'on peut dire à cause de ce sujet, et ce n'est que récemment que la profession d'actuaire est devenue connue au Canada. Cette connaissance a été causée par la formation de la Société Actuarielle Américaine et le stimulant produit par les examinations de l'Institut des Actuaires.

Dans la province d'Ontario il y a cinq universités, deux dans celle de Québec, quatre dans les Provinces Maritimes, une dans Manitoba. L'Université de Toronto et l'Université de la Trinité en sont les deux évidemment qui font attention à l'instruction des matières actuarielles.

Monsieur Baker, Professeur de la première Université, a fait attention à la science actuarielle les années passées. Au cours de mathématiques spéciales de la quatrième année, le sujet des probabilités est traité complètement. De plus on instruit la méthode des cadrats minimes et le calcul infinitésimal. De plus on fait une attention spéciale aux sujets d'annuités et d'assurance; des formules sont derivées pour les contrats réguliers; et on effleure également la construction des tables de commutation et l'estimation de la valeur des polices.

Monsieur M. A. McKenzie, Professeur de mathématiques de l'Université de la Trinité à Toronto, a traité les matières d'Assurance sur la vie dans un cours spécial de trois années.

On emploie bien des livres d'instruction publiés par l'Institut des Actuaires; et la théorie est éclaircie par des problèmes présentés dans les journaux récents d'examination qui sont publiés par l'Institut.

Quinze candidats environ des Universités Canadiennes sont employés à l'heure actuelle dans les départements d'actuaires, les uns officiellement, les autres comme surnuméraires.

KURZE NOTIZ.

ÜBER DIE VORLESUNGEN AN UNIVERSITÄTEN VON CANADA IN GEGENSTÄNDEN, WELCHE SICH AUF DIE BERUFS-THÄTIGKEIT DER AKTUARE BEZIEHEN.

Von F. Sanderson.

Ueber diesen Gegenstand kann nur verhältnismässig wenig gesagt werden. Erst seit den letzten Jahren ist der Beruf des Verwaltungsbeamten für Lebensversicherungsanstalten in Canada überhaupt eine Spezialität geworden, hauptsächlich infolge der Gründung der „Actuarial Society of America“ und infolge der von dem Institute of Actuaries abgehaltenen Prüfungen.

In der Provinz Ontario gibt es fünf Universitäten, zwei in Quebec, vier in den Küstenprovinzen und eine in Manitoba. Von diesen scheinen die Universität von Toronto und die Dreifaltigkeits-Universität die einzigen zu sein, welche für Vorlesungen in unserem Fach Sorge tragen.

Professor Baker von ersterer Universität hat unserer Verwaltungswissenschaft seit Jahren seine Aufmerksamkeit gewidmet. In dem Cursus für höhere Mathematik im vierten Studienjahre wird die Wahrscheinlichkeitsrechnung in vollem Umfang behandelt. Auch über die Berechnung der kleinsten Quadrate und über Infinitesimalrechnung werden Vorlesungen gehalten. Ferner widmet man dem Kapitel der Jahresrenten und der Versicherung überhaupt besondere Aufmerksamkeit, auch werden Schemata entworfen für Normalkontrakte, gleichwie auch die Aufstellung von Kommutationstabellen und die Wertsberechnung von Policen gestreift wird.

An der Dreifaltigkeits-Universität zu Toronto hat seit drei Jahren Professor M. A. McKenzie, Professor der Mathematik, eine Reihe von Vorlesungen speziell

über Angelegenheiten der Lebensversicherung gehalten. Die Lehrbücher des Institute of Actuaries werden benutzt und die Theorie wird durch Vorführung und Entwickelung bestimmter aus den Prüfungsschriften des Instituts genommener Probleme illustriert.

Ungefähr fünfzehn Kandidaten Canadischer Universitäten sind gegenwärtig in den Verwaltungs-Abteilungen der verschiedenen Versicherungsgesellschaften angestellt, einige definitiv, andere als Hülfsarbeiter.

DE L'INSTRUCTION DONNÉE EN FRANCE SUR LES SUJETS TRAITÉS PAR LES ACTUAIRES.

PAR HENRY PICQUET,

Ancien élève de l'École Polytechnique,
Calculateur principal à la Compagnie d'Assurances sur la Vie « Le Phénix.»

Monsieur L. Maingie, dans son intéressant rapport au Congrès international d'actuaires de Bruxelles, en 1895, a montré combien sont ignorées le plus souvent « les notions même élémentaires d'une science qui devrait dicter le texte des lois en matière d'assurances.» Nous avons trouvé cette phrase d'une saisissante actualité au moment où nous sommes menacés en France d'un impôt sur les rentes viagères que rien ne saurait justifier et nous sommes portés à croire que l'ignorance dans laquelle se trouvent beaucoup de gens de la définition mathématique du revenu viager, l'assimilation qu'ils font du capital à l'intérêt, ont fortement contribué à faire naître l'idée première de cet impôt, dont la discussion sortirait d'ailleurs du cadre du présent rapport.

Les opérations financières ayant pour base la durée de la vie humaine prennent de jour en jour trop d'importance pour que, en dehors de l'instruction spéciale et perfectionnée que doivent posséder les actuaires de profession, l'enseignement public ne fournisse pas à tous les moyens d'acquérir des connaissances générales sur la science actuarielle et les principes fondamentaux qui la régissent. Il est aujourd'hui indispensable que celui dont l'instruction a atteint un certain degré possède sur les sciences à l'ordre du jour les éléments qui lui permettront d'en parler, et, comme il peut y être appelé, d'en légiférer, sans commettre ce que nous pourrions nommer des barbarismes professionnels.

Quels sont les éléments de la science des actuaires? Où l'enseignement public, non seulement dans les Universités proprement dites, mais aussi dans les grandes Écoles, Facultés libres, etc., en est-il donné en France? Telles sont les deux questions auxquelles nous allons essayer de répondre.

On ne saurait mieux faire, pour ce qui est de la première, que de se reporter au programme des connaissances exigées des candidats au titre de Membre stagiaire de l'Institut des Actuaires Français; les matières qui y figurent, est-il dit en tête de ce programme, peuvent être considérées comme composant l'instruction théorique fondamentale d'un actuaire. Nous y trouvons quatre parties distinctes; la première, dite mathématiques pures, comprend l'arithmétique, l'algèbre, le calcul infinitésimal, des notions de géométrie analytique et le calcul des probabilités; les deux suivantes, opérations financières et assurances, relèvent directement des mathématiques; la quatrième partie du programme se rapporte à l'économie sociale, « dont les mathématiques, a dit M. Cheysson, ne doivent être que les auxiliaires, mais non les maîtresses et les despotes.»

Nous ne croyons pas nous tromper en affirmant qu'il n'existe pas en France une Université de l'État où ce programme soit traité dans son ensemble. L'enseignement universitaire donne, dans les cours de mathématiques spéciales des lycées, d'une façon à peu près complète, la première

partie, soient les mathématiques pures; toutefois le calcul des probabilités, dont la connaissance n'est pas exigée pour l'admission à l'École Polytechnique, n'est pas traité dans ces cours; nous ne voyons guère que le cours de M. Boussinesq à la Sorbonne (Physique mathématique et calcul des probabilités), où cette branche de la Science soit professée publiquement. M. Callandreau, dans son cours d'Astronomie à l'École Polytechnique, traite le même sujet avec la clarté qui caractérise son enseignement; son cours, beaucoup mieux que celui de la Sorbonne, est apte à donner à de futurs actuaires les connaissances qui leur sont nécessaires sur ce chapitre des mathématiques.

En dehors des cours organisés par l'Association philotechnique (Institut des Assurances), sur lesquels nous reviendrons plus loin, la science des opérations financières n'est guère professée que dans les Écoles de Commerce. Ces Écoles rendent au pays d'éminents services; il en existe dans tous les centres commerciaux importants, notamment au Hâvre, à Lille, à Marseille, à Lyon, à Bordeaux. A Paris, deux sont prospères: l'École Supérieure du Commerce, éminemment dirigée par M. Cantagrel, et où M. Brasilier, jusqu'à cette année, a occupé la chaire d'opérations financières; et l'École des Hautes Études commerciales, où cette science fut quelque temps enseignée par M. Léon Marie.

S'il est vrai que ces Écoles fournissent à des jeunes gens qui se destinent au commerce un enseignement élémentaire suffisant, et même que de futurs actuaires en suivraient avec fruit certains cours, nous croyons devoir ajouter que la partie mathématique n'y est vraiment pas assez développée pour cette dernière catégorie d'étudiants; il ne faut pas oublier que les mathématiques sont, somme toute, la base de la science actuarielle et que l'habitude du raisonnement, qui résulte de leur étude, est la qualité première que l'on doit acquérir, et d'où dériveront la plupart des autres.

Seule, l'Association philotechnique a le mérite d'avoir organisé depuis de nombreuses années une série de cours publics et gratuits répondant d'une façon tout à fait satisfaisante au programme que nous avons indiqué plus haut. Ces cours furent inaugurés en 1872; M. Marc Achard y exposait la théorie des annuités, des emprunts publics et des assurances sur la vie, M. Hermann Laurent enseignait le calcul des probabilités et son application à la résolution de certains problèmes de la finance et des assurances sur la vie; l'algèbre pratique, la comptabilité, y étaient également professées. Dès 1874, les opérations financières et la théorie des assurances sur la vie font l'objet de deux cours distincts et les professeurs en sont respectivement M. Charlon, directeur de la Compagnie « La Confiance,» et M. Dormoy, directeur de la Compagnie « Le Soleil.» « L'Association philotechnique, dit le Moniteur des Assurances de l'année 1874, a repris ses cours publics et gratuits dans les salles de la mairie du IX^{e} Arrondissement. Elle a, comme par le passé, réservé à l'assurance une place dans son programme qui comprend l'algèbre, la comptabilité, le droit commercial, l'économie politique, etc. Il n'est aucune de ces connaissances qui dans ses diverses applications ne touche à la pratique des assurances et ne soit faite pour l'éclairer. Nous trouvons dans cet enseignement un intérêt professionnel qui nous engage à le recommander particulièrement à nos lecteurs.»

Organisés aujourd'hui en Institut des Assurances, sous la direction de MM. Charliat et Barriol, ces cours peuvent être suivis avec fruit par tous ceux qui se destinent à l'étude des questions actuarielles; ils ont le mérite d'embrasser l'ensemble à peu près complet du programme à étudier, de mettre en rapport direct, au moyen de devoirs périodiques, les

professeurs avec leurs élèves, et de stimuler l'émulation de ceux-ci par des récompenses en espèces distribuées chaque année aux plus méritants.

Une conclusion évidente se dégage immédiatement des faits que nous venons d'exposer, si incomplets qu'ils puissent être; c'est que les Universités de l'État, si avancée que soit aujourd'hui la science des assurances, quelques services qu'elle puisse rendre à la mutualité et au pays, ne lui donnent aucune place dans leur enseignement. C'est une lacune qui serait à combler tant pour l'enseignement secondaire que pour l'enseignement supérieur; pour ce qui est du premier, il suffirait d'ajouter bien peu de chose à la partie scientifique du baccalauréat, à savoir la définition de la probabilité et la notion exacte de l'annuité viagère; on serait vraiment mal venu de se plaindre et de crier au surmenage pour une si légère addition. En ce qui concerne l'enseignement supérieur, nous ne croyons pas trop demander en réclamant pour la science des Assurances sur la Vie une consécration officielle par la création d'une chaire à la Sorbonne ou au Collège de France. Une telle innovation contribuerait puissamment à propager et à perfectionner cette science déjà si intéressante; nous souhaitons vivement de la voir se réaliser, dans le double but d'assurer à notre pays le rang qui lui est dû dans cette branche de l'activité humaine comme dans toutes les autres, aussi bien qu'à chacun de nos concitoyens le bénéfice qui résultera pour lui d'une telle vulgarisation.

31 Mars 1903.

KURZE NOTIZ.

ÜBER DIE VORLESUNGEN IN FRANKREICH, WELCHE SICH AUF DIE BERUFS-THÄTIGKEIT DER AKTUARE BEZIEHEN.

Von H. Picquet.

Die alljährlich zunehmende Ausbreitung der Lebensversicherung und der Prinzipien der Gegenseitigkeit verlangt gebieterisch eine grössere Kenntnis der Verwaltung einer Lebensversicherungsgesellschaft, — zum allermindesten der Grundprinzipien derselben, — beim gebildeten Publikum. Der wirkliche Unterricht, der hierin in Frankreich erteilt wird, ist in der Tat recht ungenügend.

Von grossem Nutzen würde es sein, wenn gewisse Fundamentalsätze, wie der Gebrauch der Mortalitätstabellen, die Wahrscheinlichkeitsberechnung des Lebens, der mathematische Wert einer Leibrente, unter die Erfordernisse für wissenschaftliche Prüfungen, selbst für die niederen akademischen Grade, aufgenommen würden. Endlich ist ja heute die Versicherungswissenschaft so hoch entwickelt und auf so allgemein anerkannten Grundsätzen basiert, dass das Verlangen nach staatlichen Lehrstühlen bei der öffentlichen Unterrichtsverwaltung gerechtfertigt erscheint.

ABSTRACT.

ON THE INSTRUCTION GIVEN IN FRANCE ON ACTUARIAL SUBJECTS.

By H. Picquet.

The development of life insurance, increasing from year to year, as well as the principle of reciprocation, make it necessary that the knowledge of managing the business of a life insurance company, or at least of its fundamental rules, be more freely disseminated among the educated public. The actual kind of instruction given in this science in France is very insufficient.

It might be useful to put on the board of many scientific examinations, and even on that of the bachelors of art, certain fundamental questions, for instance, the use of the tables of mortality, or the forecast of the probable length of life, or the mathematical value of life annuities, and so on. Indeed, the science of insurance is now sufficiently developed and is built on such universal principles, to justify the demand for public chairs of teaching established by the State.

VORLESUNGEN ÜBER VERSICHERUNGS-WISSENSCHAFT AN DEUTSCHEN HOCHSCHULEN.

Von Dr. Phil. et Jur. Alfred Manes (Berlin),
Generalsekretär des Deutschen Vereins für Versicherungs-Wissenschaft.

I. Allgemeines.

Der Begriff der Versicherungs-Wissenschaft wird heute in Deutschland in einem anderen Sinne gebraucht als gewöhnlich im Auslande. Während man im Auslande in der Regel nur die mit der Lebensversicherung zusammenhängenden wissenschaftlichen Disziplinen unter den Begriff der Versicherungs-Wissenschaft bringt, ist der deutsche Begriff weit universeller. Am deutlichsten erhellt dies aus dem § 1 der Satzungen des Deutschen Vereins für Versicherungs-Wissenschaft, wo es heisst:

„Unter Versicherungs-Wissenschaft werden hier ebensowohl die rechts- und wirtschafts-wissenschaftlichen, wie die mathematischen und naturwissenschaftlichen Wissenszweige verstanden, deren Bestand auf Fortbildung dem Versicherungswesen dienlich sind."

Die in diesem Vereine bestehenden Abteilungen für Versicherungs-Mathematik, Versicherungs-Recht, Versicherungs-Wirtschaft, Versicherungs-Medizin und Versicherungs-Technik (Technik der Schadensversicherungen) zeigen, dass die deutsche Versicherungs-Wissenschaft sich darstellt als ein Konglomerat aus Wissensgebieten, welche, abgesehen von der theologischen Fakultät, aus allen übrigen Fakultäten ausgeschält sind. Will man daher die Entwickelung der Vorlesungen verfolgen, welche in Beziehung zu dem Versicherungswesen stehen, so hat dies getrennt für die verschiedenen Fakultäten zu geschehen.

Nicht nur die eigentlichen Universitäten kommen für die hier interessierenden Vorlesungen in Betracht, sondern auch andere in Deutschland bestehende wissenschaftliche Hochschulen, welche an Bedeutung häufig den im Ausland als Universitäten bezeichneten Bildungsstätten gleichkommen: staatliche technische Hochschulen und Handels-Akademieen, welche staatliche, kommunale oder auch private Institute sind.

Wir können folgende Stadien in der Entwickelung der Pflege der Versicherungs-Wissenschaft an deutschen Hochschulen unterscheiden:

1. Bis 1894: vereinzelte Vorlesungen, in denen das Versicherungswesen meist nur nebenbei beachtet wird.
   a) Über politische Arithmetik.
   b) Über Privatrecht und Handelsrecht.
   c) Über National-Ökonomie.
2. Seit 1895 selbständige regelmässige Vorlesungen:
   a) Über Versicherungs-Mathematik.
   b) Über Versicherungs-Recht.
   c) Über Versicherungs-Wirtschaft.

Und hierbei können wir wieder unterscheiden:

   aa) Vorlesungen an Universitäten.
   bb) Vorlesungen an sonstigen Hochschulen, insbesondere Handels-Akademieen.

Die Gründung des königlichen Seminars für Versicherungs-Wissenschaft an der Universität zu Göttingen im Jahre 1895, die Entstehung von Handels-Hochschulen Ende der 90er Jahre und die Gründung des Deutschen Vereins für Versicherungs-Wissenschaft in Berlin 1899 bilden die wesentlichen äusseren Momente in der Entwickelung.

Irgend eine Vorarbeit, in welcher sich eine zuverlässige Zusammenstellung von bisher auf deutschen Hochschulen gehaltenen Vorlesungen über Versicherungs-Wissenschaft findet, ist nicht vorhanden. Bei der Zerstreutheit und schweren Zugänglichkeit des Materials ist daher leider auch hier Vollständigkeit nicht zu erreichen gewesen; es kann aber wohl behauptet werden, dass nichts Wichtiges übersehen worden ist.

Eine umfangreichere Darstellung desselben Themas habe ich in Vorbereitung und wird baldigst erscheinen.

II. Historisches.

Die Bestrebungen, dem Versicherungswesen an deutschen Hochschulen selbständige Vorlesungen zu widmen, lassen sich zurückverfolgen bis Ende der 40er Jahre des vorigen Jahrhunderts. Damals beabsichtigte *Masius,* der bekannte versicherungs-wissenschaftliche Publizist, welcher sich als „Lehrer des gesamten Versicherungswesens" auf dem Titel seiner Zeitschrift zu bezeichnen pflegte, Vorlesungen über Versicherungswesen an der Leipziger Universität zu halten. Er machte jedoch von der Erlaubnis, zu dozieren, keinen Gebrauch.

Dann hören wir nichts von den uns hier interessierenden Bestrebungen bis Mitte der 60er Jahre. Damals, 1864, suchte der preussische Ministerial-Dezernent Dr. jur. *Bohlmann* auf die Errichtung eines Lehrstuhls für das Versicherungswesen an der Universität zu Berlin einzuwirken. Freilich ohne jeden Erfolg. Hingegen wurde über Versicherungswesen gelesen im Königlichen Statistischen Seminar, welches unter der Leitung von Geheimrat Dr. *Engel* stand. Dieses Seminar diente zur Ausbildung von Beamten zu einem speziellen Beruf und zählte als Besucher nicht Studenten, sondern im Vorbereitungsdienst begriffene Verwaltungsbeamte. Der dritte Lehrgang des Seminars erstreckte sich auch auf das Versicherungswesen und auf die soziale Selbsthilfe. Die Vorlesungen über diese Zweige übernahm Dr. *Engel* selbst.

Parallel mit dieser tatsächlichen Berücksichtigung des Versicherungswesens im Statistischen Seminar laufen Bestrebungen, in Berlin eine selbständige Assekuranz-Akademie ins Leben zu rufen. Die erste Anregung hierzu scheint aus den Kreisen der Versicherungspraktiker heraus ergangen zu sein. Eine Reihe hervorragender Männer des Versicherungswesens: Dr. *Wiegand,* Direktor der Iduna in Halle, Finanzrat *Hopf,* Direktor der Gothaer Lebensversicherungs-Bank, Kommerzienrat *Knoblauch,* Direktor der Magdeburger Feuerversicherungs-Gesellschaft, Professor Dr. *Heym,* Dr. *Elsner* und vor allem auch Geheimrat Dr. *Engel* traten zur Gründung einer solchen Akademie zusammen, „die den jungen Fachmann in die Technik und in die Wissenschaft des Vereinswesens einzuführen bestimmt war." Der Lehrplan dieser Hochschule, welche jedermann ohne eine besondere wissenschaftliche Vorbildung sollte besuchen können, umfasste allgemeine Handels-Wissenschaft, Handels-, Wechsel- und See-Recht, Völkerrecht, die Versicherungs-Gesetzgebung der Hauptstaaten, Geschichte des Versicherungswesens, Versicherungs-Technik, allgemeine Versicherungslehre, Statistik, National-Ökonomie und neuere Sprachen. Der Lehrgang war auf drei Semester berechnet. Man plante sogar die Errichtung einer Handels-Hochschule, mit welcher die Versicherungs-Akademie verbunden werden sollte. Von einer An-

gliederung an die Universität wollte man nichts wissen, „weil diese auf die praktische Anwendung der Wissenschaft auf das Leben nicht eingehen könne."

Zur Gründung der Akademie kam es bekanntlich nicht, obwohl die preussische Regierung, und zwar insbesondere der damalige Dezernent, der hochverdiente Geheimrat *Jacobi,* sich lebhaft für die Angelegenheit interessierte. Dass man den Plan fallen liess, ist umso mehr zu bedauern, als gerade in den 60er Jahren die wissenschaftliche Bestrebung auf dem Gebiete des Versicherungswesens auf einem Höhepunkt in Deutschland angelangt war, den sie erst Ende der 90er Jahre wieder erreicht hat.

Dieser Höhepunkt wird durch die Gründung des Kollegiums für Lebensversicherungs-Wissenschaft 1868 illustriert. Diese Fachvereinigung hat bekanntlich nur kurze Zeit bestanden, sich aber verdient gemacht durch Herausgabe der deutschen Sterblichkeitstafel und eines 2 Jahre hindurch bestehenden Journals. Die Ursache des frühen Endes war zweifelsohne der Umstand, dass das Kollegium den Boden der Wissenschaft verliess und ein solches für das Versicherungsgeschäft wurde.

Ebenso, wie die Ende der 60er Jahre geplante deutsche Versicherungsgesetzgebung, schliefen auch die Pläne, die Versicherungs-Wissenschaft an Hochschulen zu berüchsichtigen, ein, und erwachten nicht vor dem Jahre 1880. Damals wurde das Versicherungswesen zum ersten Male auf dem Katheder vertreten, indem die Humboldt-Akademie in Berlin, eine freie, vom wissenschaftlichen Zentralverein unter *Max Hirsch* gegründete Hochschule, 3 Vortragszyklen über die Grundzüge des Versicherungswesens, die Lebens- und Feuerversicherung insbesondere, von akademisch gebildenten Fachmännern gehalten, veranstaltete. Zuerst waren diese Vorlesungen von 300 Hörern besucht, aber bald liess der Besuch nach und das Versicherungswesen schwand, von geringer Ausnahmen abgesehen, vom Katheder bis in die 90er Jahre.

Die Erkaltung des Interesses an versicherungs-wissenschaftlichen Vorlesungen in dieser Zeit ist umso erstaunlicher, als die Tätigkeit des deutschen Reichs auf dem Gebiete des Vrsicherungswesens durch Einrichtung der deutschen Arbeiter-Vrsicherung zu so grosser Entfaltung gelangte.

III. Vorlesungen an Universitäten.

1. *Versicherungs-Mathematik.*

Bis in die neueste Zeit war der zu Beginn dieser Abhandlung festgestellte Begriff der Versicherungs-Wissenschaft in Deutschland nicht vorhenden. Man kannte bis vor wenigen Dezennien hier vielmehr nur eine Versicherungs-Mathematik. Und diese bildete ein noch viel engeres Gebiet als die sogenannt Aktuar-Wissnschaft, da sie sich lediglich auf rein mathematische Dinge beschränkte. In den Vorlesungen, welche an den Universitäten über politische Arithmetik oder Staats-Rechenkunst wohl schon zu Beginn des vorigen Jahrhunderts gehalten wurden, scheint öfters wenigstens der einfachen Prämien- und Rentenberechnung, wie sie für kleinere Kassen, insbesondere solche von Beamten benötigt wurde, ein Platz eingeräumt worden zu sein. Um ein zuverlässiges Belspiel herauszugreifen, sei erwähnt, dass in Freiburg in Baden von Professor *Oettinger* in den 40er Jahren die Versicherungs-Rechnung ziemlich gründlich behandelt wurde. Aber auch *Oettinger* hat Vorgänger gehabt, ohne dass es von Bedeutung erscheint, deren wissenschaftliche Tätigkeit im einzelnen zu verfolgen, da in den Vorlesungen bis zu den 90er Jahren

des vorigen Jahrhunderts die Versicherungs-Rechnung immer nur ein verhältnismässig geringer, unselbständiger Teil anderer Vorlesungen bildet.

Selbständige Vorlesungen über Versicherungs-Mathematik hat an einer deutschen Universität, soweit dies festgestellt werden konnte, zuerst Professor Dr. *Selling* in Würzburg 1893 gehalten. Ihm folgte Professor Dr. *London* in Breslau 1895. Der erstere las ein Kolleg über „Die Methode der kleinsten Quadrate und Versicherungswesen," letzterer über „Die mathematischen Grundlagen des Versicherungswesens," und beide haben seitdem diese Vorlesungen öfters wiederholt.

Noch im gleichen Jahre, 1895, wurde, wie erwähnt, an der preussischen Universität zu Göttingen das Königliche Seminar für Versicherungs-Wissenschaft unter der Leitung der Professoren *Lexis* und *Ehrenberg* errichtet, und das Fach der Versicherungs-Mathematik von Professor Dr. *Georg Bohlmann* vertreten. Jedes zweite Semester hielt *Bohlmann* Vorlesungen, welche wöchentlich drei Stunden umfassten, über die mathematische Grundlage der Versicherungs-Wissenschaft. Hier wurde naturgemäss hauptsächlich die eigentliche Lebensversicherung behandelt und zwar die Berechnung einmaliger und jährlicher Prämien, der Prämien-Reserve, der Brutto-Prämie, der Prämien für verbundene Leben u. s. w., ferner die Abweichung der Rechnungselemente von der Wirklichkeit. Ausser der Lebensversicherung wurde die Invaliditätsversicherung, insbesondere die des Deutschen Reichs berücksichtigt. — Während diese Vorlesungen für Angehörige aller Fakultäten berechnet und daher ganz elementar gehalten wurden, war ein anderes Kolleg lediglich für Mathematiker bestimmt. Die Vorlesung: „Ausgewählte Kapitel der Versicherungs-Mathematik mit besonderer Berücksichtigung der Theorie des Risikos," behandelte:

1. die Sterblichkeit und verwandte statistische Elemente (die statistischen Messungs-Methoden, analytische Darstellung, bevölkerungs-statistische Methoden in der Lebensversicherung, die Wanderungen, die Sterbetafeln aus den kombinierten Erfahrungen der Gesellschaften);

2. die Sterbenswahrscheinlichkeit (das grundlegende Schema, wahrscheinliche Werte, Anwendung auf das Material einer Gesellschaft);

3. der mittlere Fehler (allgemeine Definitionen, Eigenschaften des mittleren Fehlers, Anwendung auf die Lebensversicherung, die fingierte Gesellschaft);

4. das Risiko einer Gesellschaft (allgemeine Definitionen, Risiko-Reserve);

5. Anwendung der mechanischen Quadratur auf die Berechnung der Prämien (Einführung der konstituirlichen, veränderlichen Quadratur in die Lebensversicherung, elementare Methoden der mechanischen Quadratur).

Ein anderes Kollegium *Bohlmann's* über „Soziale Versicherung" umfasste die Reichs-Arbeiterversicherung (Invaliditäts-, Unfall- and Krankenversicherung) in ihren mathematischen Teilen.

Seit dem Weggang von Herrn Professor *Bohlmann* aus Göttingen Ende 1902 sind seine Vorlesungen von Professor Dr. *Brendel* über-

nommen worden, ebenso wie die von ihm veranstalteten „Übungen," worüber weiter unten berichtet wird.

Die Einrichtungen des Seminars in Göttingen, auf welche wir noch zu sprechen kommen, haben in so weit vorbildlich gewirkt, als in der zweiten Hälfte der 90er Jahre an mehreren anderen Hochschulen Vorlesungen über Versicherungs-Rechnung und Mathematik eingerichtet wurden.

Diesen Fortschritt verdankt die Versicherungs-Mathematik der in dieser Zeit in Deutschland entstehenden Handels-Akademie-Bewegung. Es wurden in Leipzig und Aachen im Anschluss an die bestehenden staatlichen Hochschulen, in Cöln und Frankfurt selbständige Handels-Akademien errichtet. Die hier angezeigten einschlägigen Vorlesungen werden wir bei Betrachtung der einzelnen Handels-Hochschulen anführen.

2. *Versicherungs-Recht.*

a) Privatversicherung.

Das Versicherungs-Recht wurde bis in die neuste Zeit nur als ein Teil der allgemeinen Vorlesungen über deutsches Privat-Recht und Handels-Recht, teilweise auch das Verwaltungs-Recht behandelt. Insbesondere war es das in dem deutschen Handels-Gesetzbuch geregelte See-Versicherungs-Recht, welches in den Vorlesungen Beachtung fand.

Die erste selbständige Vorlesung über privates Versicherungs-Recht wurde von dem wohlbekannten Berliner Professor Dr. *Goldschmidt* 1886 in Berlin einstündig und öffentlich gehalten und alljährlich bis 1890 wiederholt. Ihm folgte 1893 Dr. *Lass* in Marburg, welcher einmal an dieser Universität das Versicherungsrecht behandelte, 1894 Professor Dr. *Max Weber* in Berlin, 1895 Professor Dr. *Victor Ehrenberg* in Göttingen. Nur Professor *Ehrenberg* hat diese Vorlesungen beibehalten. Er erörtert in diesen alle Materien des privaten Versicherungsrechts im Anschluss an sein bekanntes Lehrbuch. In Göttingen wird das Kolleg neuerdings von Dr. *Julius Gierke* gehalten. Hier finden auch praktische Übungen im Versicherungsrecht statt, worüber noch an anderer Stelle berichtet wird.

b) Sozialversicherung.

Zahlreicher als die Universitäts-Vorlesungen über privates Versicherungsrecht sind diejenigen über das Recht der deutschen Sozialversicherung. Dieser wurden seit ihrem Vorhandensein, also seit den neunziger Jahren, an zahlreichen Universitäten Vorlesungen gewidmet. Wir erwähnen hier insbesondere die Universitäten Berlin, Freiburg, Göttingen, Halle, Strassburg, Tübingen, und nennen nur die Namen der Dozenten: *von Bortkiewicz* (Berlin, früher Strassburg), *Bornhak* (Berlin), *Ehrenberg* (Göttingen), *Lass* (Berlin, früher Marburg), *von Mayr* (München, früher Strassburg), *Piloty* (Würzburg, früher München), *von Jolly* (Tübingen), *Rosin* (Freiburg), *Weyl* (Kiel, früher Königsberg) u. v. a.

3. *Versicherungs-Ökonomie.*

Dem privaten Versicherungswesen hat vor der Gründung des Göttinger Seminars nur Prof. *Adolf Wagner* in Berlin, und auch dieser nur ein einziges Mal, 1895, eine Spezialvorlesung gewidmet, indem er über „Versicherungs-, Kommunikations- und Transportwesen" las. Erschöpfend hat erst Prof. *Lexis* in Göttingen seit 1896 die „Ökonomik

und Statistik des Versicherungswesens“ in einem dreistündigen Kolleg erörtert. *Lexis* spricht hier über: Wesen und Zweck der Versicherung, das Risiko, die Formen der Versicherung, die staatliche Beaufsichtigung, die Besteuerung, die einzelnen Versicherungsarten. Neuerdings hält an der Berliner Universität und in einer der weiteren Ausbildung von Beamten dienenden Vereinigung Prof. *v. Bortkiewicz* versicherungsökonomische Vorträge.

Die unter der Rubrik Sozialversicherung als juristische Vorlesungen aufgezählten Kollegien gehören auch unter die hier behandelte Rubrik, da die Sozialversicherung ökonomische wie juristische Bestandteile in gleichem Masze umfasst.

4. *Versicherungs-Medizin.*

Die eigentliche Versicherungs-Medizin ist bisher auf deutschen Universitäten überhaupt noch nicht berüchsichtigt worden, wenn man unter Versicherungs-Medizin die für die privaten Lebens- und Unfallversicherungs-Gesellschaften in Betracht kommende Heilkunde versteht. Hingegen hat die deutsche Sozialversicherung eine ganze Reihe von Vorlesungen veranlasst, welche sich auf Unfall-Verhütung, erste Hilfe bei Unglücksfällen und Gewerbe-Hygiene erstrecken. Für das Sommer-Semester 1903 sind an 8 Universitäten Vorlesungen angezeigt. Einen besonderen Lehrauftrag für diese Lehrgegenstände hat Professor Dr. *Litten* (Berlin). Auch haben manchmal Juristen Vorlesungen über die Sozialversicherung für Mediziner gehalten, z. B. Professor *Lass* (Berlin).

5. *Das Göttinger Versicherungs-Seminar.*

Die erste Anregung zur Errichtung eines Seminars für Versicherungs-Wissenschaft ging vom Geheimen Regierungsrat Professor Dr. *Kiepert* aus, der zugleich der Direktion einer grossen Lebensversicherungs-Gesellschaft angehört. Er vertrat auf dem Naturforscher-Kongress in Wien 1894 die Forderung einer geregelten Ausbildung für Lebensversicherungs-Mathematiker. Die preussische Regierung verfolgte auf Veranlassung des Ministerial-Direktors Dr. *Althoff* den Plan weiter, da sie u. a. zufolge der ausgedehnten staatlichen Versicherung an der Ausbildung von Versicherungs-Mathematikern interessiert war, und noch 1895 wurde die Errichtung eines Seminars in Göttingen, freilich auf breiterer Grundlage als im Plan *Kiepert's* gelegen war, beschlossen. Die Gesellschaften standen der Errichtung nicht nur fern, sondern grossenteils sogar feindlich gegenüber. Und es ist mit lebhaftem Bedauern zu konstatieren, dass auch noch heute viele Gesellschafts-Direktionen dem Seminar mit Misstrauen begegnen. Die Leitung des Seminars hat ein Direktor, der Geh. Regierungsrat Professor Dr. *Lexis*, dem Professor Dr. *Victor Ehrenberg* zur Seite steht.

Das Seminar besteht aus zwei Klassen, einer juristisch-administrativen und einer mathematischen. Die Mitglieder beider Klassen zerfallen in ordentliche und ausserordentliche. Ordentliche Mitglieder sind immatrikulierte Studenten, die mindestens 2 Semester studiert oder nach Ansicht des Direktors eine entsprechende Vorbildung haben; ausserordentliche Mitglieder sind alle übrigen Angehörigen.

Der *Zweck* des Instituts besteht darin, denjenigen, welche als Staats- oder Privatbeamte im Versicherungswesen tätig zu werden beabsichtigen, die erforderliche wissenschaftliche Vorbildung zu verschaffen. Diese Vorbildung erstreckt sich ebensowohl auf die einschlägigen juristischen und administrativen, wie auf die nationalökonomischen, statistischen und

mathematischen Disziplinen. Im Einzelnen kommen an Vorlesungen, die an der Universität gehalten werden, hier in Betracht:

1. Theoretische National-Ökonomie;
2. Praktische National-Ökonomie;
3. Statistik und Ökonomik des Versicherungswesens;
4. Handels-, Wechsel- und Seerecht;
5. Privates Versicherungsrecht;
6. Reichsversicherungsrecht;
7. Mathematische Grundlagen des Versicherungswesens;
8. Differential-, Integral- und Wahrscheinlichkeits-Rechnung.

Ferner werden Übungen in der Buchführung für die Mitglieder des Seminars abgehalten.

Unter Leitung von Geheimrat *Lexis,* Professor *V. Ehrenberg* und Dr. *Gierke* finden wöchentlich zweistündig in jedem Semester *seminaristische Übungen* im Versicherungs-Recht und Wirtschaft statt, in denen die Mitglieder ihre obligatorischen Arbeiten zum Vortrag zu bringen haben; mathematische Übungen hält in derselben Weise Professor Dr. *Bohlmann,* bezw. Professor Dr. *Brendel* ab.

Nach den Statuten des Seminars können als ordentliche Mitglieder nur solche immatrikulierte Studierende aufgenommen werden, die mindestens im dritten Universitätssemester stehen. Ausserdem aber ist der Eintritt auch anderen Personen gestattet, wenn diese eine nach dem Ermessen des Direktors des Seminars genügende Vorbildung besitzen. Es handelt sich hier hauptsächlich um solche, die bereits praktisch im Versicherungswesen tätig gewesen sind, und für diese werden die Anforderungen in Betreff der Vorbildung nötigenfalls auf das für die Berechtigung zum einjährigen Dienst geltende Mass herabgesetzt.

Das Seminar hat das Recht, Prüfungen abzuhalten und den mit Erfolg Geprüften Diplome auszustellen, durch die sie sich als Versicherungsverständige ausweisen können, ohne dass jedoch diese Diplome irgend eine Anwartschaft auf eine Anstellung gewähren. Für jede der beiden Klassen giebt es ein besonderes Examen. Wer sich zum Diplomexamen meldet, muss den Nachweis erbringen, dass er mindestens zwei Semester dem Seminar als ordentliches Mitglied angehört und in jedem Semester eine grössere Arbeit geliefert hat, die regelmässig zum Vortrag kommt; er muss ferner nachweisen, dass er die vorgeschriebenen Kollegien belegt und gehört hat; und zwar sind obligatorisch die oben angeführten Kollegien 1 bis 7 für die Kandidaten beider Klassen.

Die Prüfung der Bewerber der administrativen Klasse umfasst:

a) eine mündliche Prüfung in folgenden Fächern:

1. Theoretische National-Ökonomie;
2. Praktische National-Ökonomie;
3. Statistik und Ökonomik des Versicherungswesens;
4. Privates und Reichsversicherungsrecht.

b) eine schriftliche Prüfung in den Elementen der Versicherungsrechnung. Diese schriftliche Prüfung dauert anderthalb Stunden, findet unter Klausur statt und umfasst die Lösung von vier numerischen Aufgaben aus der gewöhnlichen Praxis der Lebensversicherung.

Dagegen besteht die *Prüfung der Bewerber der mathematischen Klasse*

a) aus einer mündlichen Prüfung;

Diese umfasst dieselben Gegenstände wie diejenige der administrativen Klasse unter Ausschluss des Versicherungsrechts. Dafür wird

hier aber höhere Mathematik geprüft: Elemente der analytischen Geometrie, Differential-, Integral- und Wahrscheinlichkeitsrechnung mit Einschluss der Methode der kleinsten Quadrate.

b) aus einer schriftlichen Prüfung, die ebenfalls anderthalb Stunden währt und unter Klausur stattfindet; nur sind hier schwierigere Aufgaben zu lösen.

Gewöhnlich wird das Examen auf zwei Tage verteilt, die längere Zeit auseinander liegen können. Mehr als zwei Bewerber sollen nicht zusammen geprüft werden.

Über die Leistungen der Kandidaten in der schriftlichen sowie in den Einzelfächern der mündlichen Prüfung wird seitens des Fachexaminators eine Zensur erteilt nach dem Schema: I. sehr gut; II. gut; III. genügend; IV. teilweise genügend; V. ungenügend. Die Gesamtnote über den Ausfall des Examens wird nach dem gleichen Schema unter Berücksichtigung des Gewichts der einzelnen Zensuren durch Beschluss der bei der Prüfung beteiligten Kommissions-Mitglieder nach Stimmenmehrheit festgesetzt. Bei Stimmengleichheit entscheidet die Stimme des Vorsitzenden. Wenn die Gesamtzensur nicht mindestens genügend lautet, so darf das Diplom dem Bewerber nicht erteilt werden. Er kann es jedoch nachträglich erlangen, wenn er sich nach Ablauf von mindestens sechs Monaten in denjenigen Fächern, in denen er eine geringere Einzelzensur erhalten hatte, mit genügendem Erfolge einer Wiederholungsprüfung unterzieht. Will sich ein Mitglied des Seminars der Prüfung nicht unterziehen oder hat er das Examen nicht bestanden, so wird ihm auf Wunsch des Direktors des Seminars ein Abgangszeugnis ausgestellt, das ein Urteil über den Fleiss und die Angabe der gehörten Vorlesungen enthält.

Was die Kosten anbelangt, die mit dem Besuch des Seminars verknüpft sind, so ist deren Höhe folgende:

Immatrikulation an der Universität	M. 12
Auditoriengeld	„ 5
Gebühr für das Seminar	„ 5
Kollegiengelder insgesamt ca.	„ 110

(Für ein Kolleg von vier Stunden wöchentlich M. 20, von drei Stunden M. 15 u. s. w.)

Gebühr für das Examen in einer Klasse	„ 40
Gebühr für das Examen in beiden Klassen	„ 48
Gebühr für das Examen im Wiederholungsfalle	„ 20
Gebühr für ein Abgangszeugnis	„ 5

Die Mitglieder gehören fast allen Fakultäten an. Die Juristen sind weitaus am stärksten vertreten; die Zahl der Mathematiker wächst erst neuerdings bedeutend an. Nicht nur Studenten gehören dem Institute an, sondern regelmässig auch eine Anzahl von Referendaren, Privat- und Staatsbeamten etc.

Es verdient noch erwähnt zu werden, dass mit dem Seminar eine Fach-Bibliothek verknüpft ist. Nächst dieser steht die Kgl. Bibliothek und deren Lesezimmer, in welcher sich ebenfalls einschlägige Zeitschriften finden, zur unentgeltlichen Benutzung der Mitglieder; desgleichen das Lesezimmer des mathematischen Seminars.

Das Versicherungsseminar erhält eine jährliche staatliche Dotation von 1200 M. An sonstigen Einnahmen hat es etwa 500 M. jährlich aus den oben erwähnten Semestergebühren, während die Prüfungsgebühren

den Examinatoren und der Universität zufliessen. Für die Anschaffung von Büchern und Zeitschriften verbleiben jährlich etwa 1000 M.

Massgebend für seine Verfassung sind die vorläufigen Statuten aus dem Winter-Semester 1895/96 und die ministerielle Prüfungsordnung vom 27. Juli 1896.

Die Frequenz betrug 1895 13 ordentliche und 8 ausserordentliche Mitglieder, darunter nur 2 Mathematiker; 1900 hatte der Besuch aber die abnormale Höhe von 56 ordentlichen und 8 ausserordentlichen Mitgliedern erreicht, darunter 13 Mathematiker. Seitdem sind folgende Besuchszahlen aufzuweisen:

Winter 1900/01	53
Sommer 1901	50
Winter 1901/02	42
Sommer 1902	38
Winter 1902/03	38

Der Rückgang wird von dem Direktor des Seminars als ein ganz normaler bezeichnet, wie er nach dem übermässig und ausser allem Verhältnis zum Bedürfnis nach Versicherungs-Verständigen stehenden Andrang 1900 bestimmt zu erwarten war, ja, man erwartet und wünscht noch eine weitere Abnahme, indem man das Bedürfnis bei einem regelmässigen Besuch von 25 Mitgliedern vollkommen gedeckt glaubt.

Was die Prüfungen betrifft, so sind seit Gründung des Seminars bis Herbst 1900 106 Diplome ausgestellt worden, darunter 2 der mathematischen Klasse. Im Jahre 1900/01 waren es 18, im Jahre 1901/02 17 und im Winterhalbjahr 1902/03 7 Diplome, welche erteilt werden konnten. Von diesen 42 Diplomen 1900/03 sind 8 mathematische. Mehrere Kandidaten unterzogen sich den Prüfungen in beiden Klassen. Die Zahl der Kandidaten, welche sich der Prüfung vergeblich unterzogen, ist — wenigstens in letzter Zeit — eine verhältnismässig grosse. Beachtenswert ist die Tatsache, dass das Seminar auch von Ausländern gern besucht wird.

Hervorzuheben ist, dass die Versicherungs-Medizin, ebensowenig wie etwa die Technik der Schadenversicherungen in Göttingen Berücksichtigung findet, dass auch über die Geschichte der Versicherung nicht vorgetragen wird.

IV. Vorlesungen an technischen und Handels-Hochschulen.

Betrachten wir nunmehr die an sonstigen deutschen Hochschulen eingerichteten Vorlesungen über Versicherungs-Wissenschaft.

a) *Aachen.*

Seit dem Jahre 1898 besteht an der Technischen Hochschule zu Aachen ein zweijähriger Kursus für Handels-Wissenschaften. Von Anfang an ist in deren Lehrplan eine Berücksichtigung der Versicherungs-Wissenschaften aufgenommen worden; der Gedanke einer noch stärkeren Berücksichtigung ist öfter besprochen worden.

Für die nationalökonomische Seite des Versicherungswesens besteht keine Sonder-Vorlesung, sie wird in der Vorlesung über National-Ökonomie behandelt. Eine ausführliche Darlegung der deutschen Arbeiter-Versicherung findet statt in einer dreistündigen Vorlesung über soziale Gesetzgebung, beides in jedem Sommer-Semester von Professor Dr. W. *Kähler.*

Die privatwirtschaftliche Seite der Versicherung, ihre Bedeutung für den kaufmännischen Betrieb und ihre Organisation als kaufmän-

nischer Betrieb wird behandelt in der Vorlesung über *kaufmännische Betriebslehre,* in jedem Semester, je zwei Stunden von Dr. *Schatz.*

Ausserdem werden speziell gehalten: eine einstündige Winter-Vorlesung über Versicherungsrecht (ausschliesslich der Arbeiterversicherung) von Landrichter Dr. *Kayser* und eine zweistündige mit gelegentlichen Übungen verbundene Winter-Vorlesung über Versicherungs-Mathematik im jährlichen Wechsel von Geh. Regierungsrat Prof. Dr. *von Mangoldt* und Prof. Dr. *Jürgens.*

Auch in der Vorlesung über *kaufmännisches Rechnen* wird das Versicherungswesen berücksichtigt.

Die Vorlesung über Versicherungs-Mathematik hat folgenden Inhalt:

Grundgesetze der Wahrscheinlichkeitsrechnung, geschichtliche Entwickelung des Versicherungswesens, Grundbegriffe der mathematischen Bevölkerungs-Statistik, Sterblichkeitstafeln, Volkstafeln und Tafeln aus den Erfahrungen der Lebensversicherungsgesellschaften, die wichtigsten gegenwärtig im Gebrauch befindlichen Sterblichkeitstafeln, Methoden, nach welchen dieselben dauernd kontrolliert und erforderlichenfalls verbessert werden können, Berechnung der Prämien und der rechnungsmässigen Reserven für die wichtigsten Arten der Lebensversicherungsverträge, einschliesslich der Versicherungen auf verbundene Leben, Aufstellung der Bilanz einer Lebensversicherungsgesellschaft, Technik der Feuer- und Unfallversicherung.

b) *Cöln.*

Über die Vorlesungen über Versicherungs-Wissenschaft an der Handels-Hochschule zu Cöln ist folgendes zu berichten:

Seit Bestehen der Handels-Hochschule sind seit 1901 folgende Vorlesungen von Privatdozent Dr. *Moldenhauer* gehalten worden:

Privates Versicherungsrecht, Versicherungslehre, Ökonomik und Statistik des Versicherungswesens, Versicherungspraktikum, soziale Versicherungs-Gesetzgebung, Übungen im Versicherungsrecht mit besonderer Berücksichtigung des Transport- und Feuerversicherungsrechts.

Vorgesehen ist: Geschichte des Versicherungswesens.

Die Vorlesungen verfolgen einen doppelten Zweck. Sie sollen einmal denjenigen, der sich ganz dem Versicherungswesen widmen will, auf seinen künftigen Beruf vorbereiten. Gleichzeitig sollen sie den vielen in Cöln lebenden Angestellten der Versicherungsgesellschaften, Generalagenturen etc. Gelegenheit zur Erweiterung und Vertiefung ihres Wissens auf diesem Gebiete geben. Dazu dienen vornehmlich die systematischen Vorlesungen und das Versicherungs-Praktikum. Im letzteren werden wichtige Fragen des Versicherungsrechts, der Versicherungstechnik und der Versicherungs-Mathematik besprochen, zuweilen im Anschluss an einen, von einem der Hörer gehaltenen Vortrag. Zweitens sollen die Vorlesungen dazu dienen, den jungen Kaufleuten, die als Studierende die Handels-Hochschule besuchen, mit den Grundzügen des Versicherungsrechts und den Haupteinrichtungen des Versicherungswesens bekannt zu machen. Die Vorlesungen finden eine Ergänzung in den Übungen im Versicherungsrecht, in denen alle die Rechtsverhältnisse mit handpraktischen Fällen besprochen werden sollen, die für den Kaufmann Interesse haben, also namentlich aus der Transport- und Feuerversicherung.

c) *Dresden.*

Die technische Hochschule in Dresden besitzt seit 1896 ein versicherungstechnisches Seminar, welches in erster Linie für Mathematiker

bestimmt ist. Das Versicherungswesen ist in Dresden aber schon 1880 berücksichtigt worden. Damals las Geheimrat *Zeumer* über „Theorie der Leibrenten und Lebensversicherungen." Aber erst seit Anfang der 90er Jahre ist das Fach wiederholt eingehend beachtet worden. Wir erwähnen die Vorlesungen von *Böhmert:* Das Versicherungswesen in seiner volkswirtschaftlichen Bedeutung und historischen Entwickelung 1895; *Helm:* Einleitung in das Versicherungswesen und versicherungstechnisches Seminar 1892 etc.

Im Gegensatz zu Dresden findet das Versicherungswesen an der sächsischen Handels-Hochschule in *Leipzig* fast überhaupt keine Beachtung und wird regelmässig nur in allgemeinen Kollegien behandelt.

d) *Frankfurt a/M.*

Die Akademie für Sozial- und Handelswissenschaften zu Frankfurt a/M., welche 1901 eröffnet worden ist, hat das Verdienst, die erste Sozialprofessur für Versicherungswesen in Deutschland eingerichtet zu haben, welche von Prof. Dr. *Bleicher* bekleidet wird.

Dieser hat bisher an einschlägigen Vorlesungen die folgenden gehalten: Versicherungslehre I. Teil (Allgemeines, Geschichte, Theorie und Praxis der Lebensversicherung). II. Teil (Geschichte, Theorie und Praxis der wichtigeren Versicherungszweige, mit Ausschluss der Lebensversicherung); Versicherungs-Rechnung, Versicherungs-Mathematik, sowie praktische Übungen im Versicherungs-Seminar über spezielle Aufgaben aus dem Gebiet der Lebensversicherung, die geschäftliche Praxis einzelner Versicherungszweige, sowie Elemente der Wahrscheinlichkeits-Rechnung.

An derselben Hochschule behandelt Dr. *Burchard* das private Versicherungsrecht, Dr. *Freudenthal* das Arbeiter-Versicherungsrecht, beide ebenfalls in praktischen Übungen.

Seit Ende 1902 hat die Frankfurter Akademie das Recht, Prüfungen für Versicherungs-Verständige abzuhalten und Diplome auszustellen. Da die Frankfurter Prüfungs-Ordnung die erste dieser Art für eine Handels-Hochschule ist, geben wir einen Auszug aus ihrem Wortlaut.

Die Prüfung der Bewerber um das Diplom für Versicherungs-Verständige wird von den Mitgliedern einer von dem Minister der geistlichen, Unterrichts- und Medizinalangelegenheiten zu diesem Zwecke ernannten Kommission, deren Vorsitzenden gleichfalls der Minister bestimmt, abgehalten.

Zur Prüfung können nur solche Bewerber zugelassen werden, welche an der Akademie für Sozial- und Handelswissenschaften mindestens zwei Semester als Besucher oder Hospitanten eingetragen waren und an der Akademie oder einer anderen deutschen Hochschule folgende Vorlesungen gehört haben:

1. Theoretische und praktische Nationalökonomie.
2. Privates und öffentliches Versicherungsrecht.
3. Handels- und Seerecht, Wechselrecht.
4. Allgemeine Versicherungslehre (Versicherungsökonomik und Statistik).
5. Versicherungs-Rechnung mit Übungen.
6. Elemente der Handelstechnik (Buchhaltung, kaufmännisches Rechnen, Wechsellehre).

Die Prüfung zerfällt in eine solche für Bewerber:

a) der administrativen Klasse, zu welcher höhere Verwaltungsbeamte, Richter, Assessoren und Referendare, sowie Rechtskandi-

daten zugelassen werden, welche mindestens vier Semester Hochschulbildung genossen haben;

b) der kaufmännischen Klasse, zu welcher Kaufleute, Beamte von Bank- und Versicherungsinstituten u. s. w. zugelassen werden, die in der Regel nach der Vorbereitungszeit zwei Jahre in der Praxis tätig gewesen sein müssen;

c) der mathematischen Klasse, zu welcher akademisch gebildete Lehrer, Versicherungstechniker und solche Studierende der Mathematik zugelassen werden, welche mindestens vier Semester Hochschulbildung genossen haben.

I. Die Prüfung für Bewerber der administrativen Klasse umfasst:

a) eine mündliche Prüfung in folgenden Fächern:

1) Theoretische und praktische National-Ökonomie;
2) Statistik und Oekonomik des Versicherungswesens;
3) Versicherungsrecht;

b) eine schriftliche Prüfung in den Elementen der Versicherungs-Rechnung.

Für die schriftliche Prüfung, die unter Klausur stattfindet, werden dem Bewerber vier numerische Aufgaben gestellt, wie sie in der gewöhnlichen Praxis der Lebensversicherung vorkommen.

II. Die Prüfung für Bewerber der kaufmännischen Klasse umfasst die gleichen Prüfungsgegenstände, wie die Prüfung der Bewerber der administrativen Klasse, mit der Massgabe, dass an Stelle der mündlichen Prüfung aus dem Versicherungsrecht eine mündliche Prüfung aus den Elementen der Handelstechnik (Buchhaltung, kaufmännisches Rechnen, Wechsellehre) tritt.

III. Für die Bewerber der mathematischen Klasse besteht die Prüfung:

a) aus einer mündlichen Prüfung in der theoretischen und praktischen Nationalökonomie, sowie in der Statistik und Ökonomik des Versicherungswesens, wie zu I. a) Ziffer 1) und 2), ferner in der höheren Mathematik; die Prüfung im letzteren Fache hat sich auf die Elemente der analytischen Geometrie, die Differential- und Integralrechnung und die Wahrscheinlichkeitsrechnung mit Einschluss der Methode der kleinsten Quadrate zu erstrecken;

b) aus einer gleichfalls unter Klausur stattfindenden schriftlichen Prüfung, in der der Bewerber Aufgaben zu lösen oder Fragen zu beantworten hat, die sich auf schwierigere Gegenstände beziehen.

e) *Sonstige Hochschulen.*

An den übrigen technischen Hochschulen und an den Berg-Akademieen werden gelegentlich Vorlesungen gehalten über Gewerbe-Recht und Gewerbe-Hygiene, sowie über Arbeiter-Versicherung, Unfall-Verhütungen und Hilfeleistung bei Unglücksfällen. Das private Versicherungswesen findet hier aber keine Beachtung.

V. Schluss.

Wir haben im Vorhergehenden versucht, ein Bild zu entwerfen von dem historischen Werdegang der Pflege der Versicherungs-Wissenschaft auf den deutschen Hochschulen und können unserer Genugthuung darüber Ausdruck geben, dass seit Ende des vorigen Jahrhunderts diese Disziplin in stark wachsendem Masze Beachtung gefunden hat.

Dass man sich aber mit dem bisher Geleisteten nicht begnügen, sondern der Versicherungs-Wissenschaft noch in höherem Grade an den

deutschen Hochschulen, insbesondere den Universitäten, eine Stätte bereiten muss, und auf welche Weise diese geschehen könnte, ist eine interne Angelegenheit, deren Erörterung auf einem internationalen Kongress nicht angebracht sein dürfte.

Eine ganze Reihe Ausländer, insbesondere Oesterreicher, Italiener, Japaner, haben sich ihre Ausbildung für das Versicherungswesen auf deutschen Hochschulen verschafft, und schon dieser Umstand zeigt, dass die Versicherungs-Wissenschaft keine Landesgrenzen kennt und alle Kulturvölker an dem Fortschritt dieser Wissenschaft hohes Interesse haben müssen.

ABSTRACT.

LECTURES ON INSURANCE IN GERMAN UNIVERSITIES.

By Dr. Alfred Manes.

I. *General.* In Germany, insurance as a study has a broader meaning than elsewhere, including the science of law and public economy, as auxiliary to insurance, as well as the mathematical and statistical branches.

II. *History.* In German universities, the efforts to introduce the special and independent study of insurance date from before 1850, when Masius, who called himself "Teacher of Insurance" in the proudest sense, planned courses in the University of Leipsic, which were not, however, carried out. In 1864 Bohlman strove in vain to found a chair of insurance science in the University of Berlin. But the Royal Seminary of Statistics, under Dr. Engel, gave lectures to practical insurance workers in their calling.

At the same time a number of eminent Insurance men planned an Academy of Insurance in Berlin, which should cover the whole field of the allied sciences, in a course of three semesters, wholly apart from the university, and the Prussian Government was deeply interested. But the project failed.

In 1868 the subject attracted more attention and zeal than ever before, and even for many years afterwards; and the College for Life Insurance Science was founded. By its agency the German mortality table was published, and its journal was issued for two years. But the college abandoned its scientific character and died out.

In 1880, three courses on the principles of insurance were given in the Humboldt Academy in Berlin, attended at first by 300 hearers; but the attendance fell off, and the subject lost all place in instruction for many years, in spite of the wide interest aroused by the legislation of the German Empire for the insurance of workingmen.

III. *University Courses.* 1. *Mathematics.* In the university lectures on political arithmetic or statistics, given a century ago, some notice was often taken of the simple calculations of premiums and annuities. In Freiburg (in Baden) Prof. Oettinger gave quite thorough accounts of these calculations in the forties. But the first special courses on Insurance Mathematics were those of Prof. Selling in Würzburg, in 1893, and Dr. Loudon in Breslau, in 1895. In 1895, too, was founded the Royal Seminary for Insurance Science at Göttingen, under Professors Lexis and Ehrenberg, with Dr. George Bohlmann in the mathematical chair. Besides the courses for professional students, a full technical course for mathematicians was given. Dr. Brendel succeeded Dr. Bohlmann in 1902.

After 1895, several others among the higher institutions of learning took up insurance calculations as a branch of instruction: in Leipsic and Aix-la-Chapelle this was done in connection with the existing state institutions; in Cologne and Frankfurt by independent commercial academies.

2. *Insurance law* was till recently treated only as a branch of general instruction in the law of contract and commerce. The law of private insurance was first treated as an independent study by Professor Goldschmidt in Berlin, in 1886, and yearly to 1890; then by Dr. Lass in Marburg, in 1893; by Dr. Max Weber in Berlin, in 1894; and by Professor Ehrenberg in Göttingen, 1895. Far more numerous have been the university courses in the law of social or public insurance.

3. *The Economies of Insurance* have been fully treated by Professor Lexis in Göttingen since 1896.

4. *The Medical Side of Life Insurance* has been neglected in the universities, though eight universities last summer had lectures on the avoidance of accidents, first aid to the wounded, and the hygiene of industries.

The Seminary for Insurance Instruction at Göttingen was founded in 1895, though opposed by most of the companies, many of which are still averse to it. Dr. Lexis is the Director, assisted by Dr. Ehrenberg. Its purpose is to qualify students to become officers in insurance companies or in the insurance service of the state. It covers all branches of economics, law and mathematics which are concerned with insurance or useful in its practice, and also bookkeeping.

The seminary holds examinations and gives diplomas of two classes to those who have attended two full semesters and met all requirements: first of administrative proficiency, including economics, statistics, insurance law and the elements of technical calculations; and, second, of mathematical training, including, besides economics and statistics, a course in the higher mathematics, covering probabilities with the method of least squares, and the solution of difficult problems.

In 1895 there were thirteen regular and eight special students, only two in mathematics. But in 1900 there were fifty-six regular and eight special students, thirteen of these in mathematical courses. The number was far greater than the demand for such acquirements justified, and has gradually fallen off to thirty-eight in all. But it is believed that a school of twenty-five would meet all current needs. Down to the autumn of 1900 the seminary had conferred 106 diplomas, but only two for mathematical proficiency.

IV. *Course of Lectures in Technical and Commercial Schools.* At Aix, from 1898, there have been lectures on the economical relations of insurance in the commercial courses of the School of Technology, and a course on insurance mathematics. At Cologne, since the Commercial Academy was opened in 1901, lectures have been given in many branches of insurance economics and law; and others specially designed to instruct the agents of companies in their work, and young merchants in the principles of insurance law. The School of Technology in Dresden has since 1896 included a seminary of insurance science, designed primarily for mathematical teaching, but kindred subjects have been treated there ever since 1880. The Academy of Social and Commercial Science in Frankfurt-on-the-Main, opened in 1901, established the first chair in Germany of insurance as a branch of social science, Professor Bleicher being the incumbent; and since 1902 this academy holds examinations in insurance and grants diplomas. In other technical schools and academies occasional instruction is given in kindred subjects, especially in the hygienic and medical branches of social science and the public insurance of workmen, but no attention is paid to insurance by private contract.

Conclusion. The beginning of this century finds the study of insurance prosperous and progressive in the German educational world. Many foreigners, especially Austrians, Italians and Japanese, have studied insurance in German institutions.

RÉSUMÉ.

CONFÉRENCES SUR L'ASSURANCE AUX UNIVERSITÉS ALLEMANDES.

PAR LE DOCTEUR ALFRED MANES.

I. *Remarque générale.* En Allemagne l'idée l'assurance comme branche d'étude a un sens plus large qu'ailleurs, renfermant comme auxiliaires les sciences du droit et de l'économie politique, aussi bien que les branches mathématiques et statistiques.

II. *Histoire.* Les efforts d'introduire l'étude spéciale et indépendante de l'assurance dans les universités allemandes remontent jusqu'avant 1850, quand Masius qui s'appelait "maître d'affaires d'assurance tout entières," projetait de faire un cours à l'université de Leipsic, sans profiter pourtant de la permission. En 1864, Bohlmann s'efforçait en vain de fonder une chaire de science d'assurance à l'université de Berlin. D'autre part, on faisait des conférences pour des employés d'administration en train de préparation, au Séminaire royal de Statistique, sous la direction du docteur Engel. Au même temps un nombre d'hommes distingués dans les affaires d'assurance projètait une Académie d'Assur-

ance à Berlin qui devait embrasser le champ entier des sciences alliées dans un cours de trois semestres tout-à-fait séparé de l'université; et le gouvernement prussien y portait un intérêt profound, mais le projet ne réussit pas.

En 1868, le sujet attirait plus d'attention et de zèle que jamais auparavant et même pendant plusieurs années ensuite, et le Collège de Science d'Assurance pour la Vie fut établi. Par san entremise a été publié la Table de Mortalité Allemande et aussi, pendant deux années, un Journal. Mais le Collège abandonnait son caractère scientifique et cessait d'exister.

En 1880 on faisait, à l'Académie Humboldt à Berlin, trois cours sur les principes d'assurance, frequentés d'abord par 300 auditeurs, mais la présence se perdait et le sujet disparaissait du plan d'instruction pendant beaucoup d'années, malgré le grand intérêt éveillé par la legislation de l'empire allemand pour l'assurance des ouvriers.

III. *Cours d'Université.* 1. *Mathématiques.* Dans les conférences d'université sur l'arithmétique politique ou la statistique, faites il y a un siècle, on semblait s'occuper fréquemment des simples calculations de primes et d'annuités. A Fribourg en Bade le professeur Oettinger à traité bien à fond ces calculations entre 1840 et 1850. Mais les premiers cours spéciaux sur la methématique d'assurance étaient ceux du professeur Selling à Würzburg en 1893 et du professeur London à Breslau en 1895. En 1895 a été fondé aussi le Seminaire royal de Science d'Assurance à Göttingen sous la direction des professeurs Lexis et Ehrenberg, avec le docteur Georges Bohlmann occupant la chaire de mathématique. Outre les cours pour des étudiants non de profession, on faisait un cours technique complet pour des mathématiciens. Le docteur Brendel succédait au docteur Bohlmann en 1902.

Après 1895 plusieurs parmi les autres écoles des hautes études ont adopté les calculations d'assurance comme branche d'instruction: à Leipsic et à Aix-la-Chapelle en rapport avec les écoles d'état existantes, à Cologne et à Francfort par l'érection des académies commerciales indépendantes.

2. *Le Droit d'Assurance* a été traité, jusqu' à une époque récente, seulement comme une branche de l'instruction au droit civil et commercial. Le droit d'assurance privée à été traité comme étude indépendante pour la première fois par le professeur Goldschmidt à Berlin, en 1886, et annuellement jusqu' à 1890; ensuite par le docteur Lass à Marburg en 1893; par le docteur Max Weber à Berlin en 1894; et par le professeur Ehrenberg à Goettingen. Les cours d'université sur l'assurance social ou publique ont été plus nombreux.

3. *L'économique d'Assurance* à été traité complètement par le professeur Lexis à Goettingen depuis 1896.

4. *Le côté médical de l'Assurance pour la Vie* à été negligé dans les universités allemandes, bien qu' à huit on ait fait, l'été dernier, des conférences sur la fuite d'accidents, le premier secours aux blessés et l'hygiene d'industrie.

Le Séminaire Science d'Assurance à Goettingen à été fondé en 1895 malgré l'opposition de la plupart des compagnies, dont beaucoup y portent encore de méfiance. It est sous la direction du professeur Lexis, assisté par le professeur Ehrenberg. Son but est de préparer des étudiants à devenir officiers d'assurance, ou dans les compagnies ou au service de l'état. Cette préparation comprend toutes les branches de l'économique, du droit et des mathématiques qui concernent l'assurance ou sont utiles dans sa pratique, et aussi la tenue des livres.

Le séminaire fait des examens et donne des diplômes de deux classes à ceux qui ont suivi deux semestres entiers et ont fait face à toutes les conditions requises: en premier lieu à celle de force administrative, renfermant l'économique, la statistique, le droit d'assurance et les éléments des calculations techniques; et en second lieu à celle d'éducation mathématique, renfermant outre l'économique et la statistique, un cours de mathématiques pures, comprenant le calcul des probabilités avec la méthode des moindres carrés et la solution des problèmes difficiles.

En 1895 il y avait treize étudiants réguliers et huit étudiants spéciaux, deux seulement en mathématiques. Mais en 1890 il y avait cinquante six étudiants réguliers et huit étudiants spéciaux, dont treize suivaient des cours mathématiques. Le nombre à été beaucoup plus grand que fut justifié par la demande de telles connaissances, et à diminué peu à peu jusqu' à trente huit à tout. Mais on croit qu'une école de vingt cinq ferait honneur à tous les besoins actuels. Jusqu' à l'automne de 1900 le séminaire avait conféré cent six diplômes, mais seulement deux pour progrès dans les mathématiques.

IV. *Cours de Conférences dans les Ecoles techniques et commerciales.* Depuis 1898 on a fait à Aix-la-Chapelle des conférences sur les relations d'assurance économiques, dans les cours commerciaux de l'Ecole de Technologie, et un cours sur les mathématiques d'assurance. A Cologne, depuis l'érection de l'Académie commerciale en 1901, on à fait des conférences sur beaucoup de branches de

l'économique et sur le droit d'assurance; et d'autres destinées particulièrement à instruire les agents des compagnies dans leur travail et des jeunes marchands dans les principes du droit d'assurance.

L'École de Technologie à Dresde renferme depuis 1896 un séminaire de science d'assurance destiné originairement à l'enseignement des mathématiques, mais on y traite des sujets alliés toujours depuis 1880. L'Académie des Sciences sociales et commerciales à Francfort, ouvert en 1901, à crée le premier professorat d'assurance comme branche de la science sociale en Allemagne et donc le professeur Bleicher est le titulaire. Et depuis 1902 cette académie fait des examens en assurance et accorde des diplômes. D'autres écoles et académies techniques pourvoient à l'enseignement par occasion des sujets alliés, surtout des branches hygiéniques et médicales de la science sociale, et de l'assurance publique des ouvriers, mais on n'y fait point attention à l'assurance privée.

V. *Conclusion.* Au commencement de ce siècle l'étude de l'Assurance se trouve florissante et progressive dans le monde d'éducation allemand. Bien des étrangers, surtout des Autrichiens, des Italiens et des Japonais ont étudié l'Assurance aux institutions allemandes.

ÜBER VERSICHERUNGSMATHEMATISCHEN UNTERRICHT AN DEN UNIVERSITÄTEN.

Von Universitäts-Professor Dr. L. von Bortkiewicz (Berlin),
Ausschuss-Mitglied des Deutschen Vereins für Versicherungs-Wissenschaft.

Die Aufgaben, mit denen die Praxis an den Versicherungsmathematiker herantritt, wie namentlich die Aufstellung von Bilanzen und Prämientarifen, finden ihre Lösung auf der Grundlage gewisser Berechnungen, die meist durchaus elementarer Natur sind. Es handelt sich hierbei um Anwendung von Formeln, die im wesentlichen dem Gebiet der niederen Algebra angehören. Bekanntlich vermeidet es die Praxis, von den höheren Partien der Lebensversicherungsrechnung, wie insbesondere von der Theorie des Risikos, Gebrauch zu machen, und alles übrige, was auf die Praxis Bezug hat, erheischt nicht einmal die Kenntnis der elementaren Wahrscheinlichkeitsrechnung, die man bei der Entwicklung der Prämien- und Reserveformeln sehr wohl ganz ausser Spiel lassen kann. Eine durchaus untergeordnete praktische Bedeutung kommt auch den in den Lehrbüchern der Lebensversicherungsrechnung sich vorfindenden Reihenentwicklungen zu, welche zu gewissen Näherungsformeln führen. Bedenkt man ausserdem, dass der Grundgedanke, von welchem alle Berechnungen auf dem Gebiete der Lebensversicherung ausgehen, ein höchst einfacher ist, so wird man leicht geneigt sein, zu glauben, dass jeder, der einige Routine im Rechnen besitzt, von dem Mathematiker von Fach nicht zu reden, in der Lage sein wird, wenn er nur jenen Grundgedanken einmal erfasst hat, ohne spezielle Anleitung, sondern kraft seines mathematischen Könnens allein, den richtigen Weg zu den Lösungen der Aufgaben zu finden, die sich im Versicherungswesen darbieten. Dem ist aber in Wirklichkeit nicht so. Zunächst lehrt die Geschichte der Lebensversicherungsrechnung, dass man bei den einzelnen Fragen nicht so ohne weiteres auf die richtige, geschweige denn auf die kürzeste Ableitung der massgebenden Formeln verfällt. Wie hat man sich nicht z. B. mit der Berechnung des Wertes einer Leibrente auf verbundene Leben abgemüht, ehe man auf die korrekte Methode gekommen ist? Hervorragende wissenschaftliche Kapazitäten haben gefehlt oder weite Umwege genommen, wo wir ein richtiges und kürzeres Verfahren einschlagen, weil uns die nötigen mühelos übernommenen Schemata zur Verfügung stehen. Sodann zeigen die persönlichen Erfahrungen, die man als Dozent oder sonstwie sogar an geschulten Mathematikern machen kann, dass sie im Anfang vielfach die grösste Unbeholfenheit zur Schau tragen, wenn von ihnen verlangt wird, die Prämien- oder Reserveformel für eine Versicherungskombination aufzustellen, die sie nicht „gehabt“ haben. Es gehört eben eine gewisse Denkgewohnheit dazu, die von den meisten nicht anders als auf dem Wege eines geregelten Studiums erworben zu werden vermag. Dazu kommt, dass zur Lösung einer praktischen Aufgabe aus dem Gebiete des Versicherungs- oder Pensionswesens die mathematischen Formeln allein nicht ausreichen. Es bedarf empirischer Grundlagen, um zu einer numerischen Auswertung der durch die algebraische Rechnung gelieferten Ausdrücke zu kommen. Und wie rathlos steht derjenige da, der nur Mathematiker ist, wenn es

gilt, in einem konkreten Fall eine Wahl zwischen verschiedenen Sterblichkeits-, Invaliditäts-, Krankheits-Tabellen zu treffen! Es ist kein leichtes Beginnen, sich ad hoc die nötigen Kenntnisse zu verschaffen, um über die Zuverlässigkeit und Anwendbarkeit dieser oder jener statistischen Tafel ein sachgemässes Urteil fällen zu können. Auch hier thut eine systematische Anleitung not. Und so sehen wir denn auch, dass die Versicherungsmathematik zu einem gleichsam selbständigen Fach geworden ist, und es beruht keineswegs auf einer ungerechtfertigten Selbstüberhebung der Vertreter dieses Fachs, wenn sie als Spezialisten anerkannt werden wollen. Sie haben einen Anspruch darauf kraft ihres besonderen Wissens, welches eine Ergänzung der allgemeinen mathematischen Bildung darstellt.

Während nun aber im Vereinigten Königreich, wo der „Aktuar" es zum relativ grössten Ansehen gebracht hat, die Versicherungsmathematik eigene Pflegestätten besitzt, haben sich dieser Disziplin in Deutschland die Universitäten angenommen, und es kann in Zweifel gezogen werden, ob dieses berechtigt und zweckmässig sei. Die folgenden Erwägungen dürften, wie ich glaube, zur Klärung dieser Frage einiges beitragen. Fasst man zunächst das Interesse der Weiterbildung der Versicherungsmathematik selbst ins Auge, so wird man kaum in Abrede stellen wollen, dass sich das Verlangen nach einer Vertiefung und Generalisierung der Lehren dieser Wissenschaft geltend macht. Wie sehr es auf diesem Gebiete Noth thut, auf die Prinzipien zurückzugehen und sich von gewissen überlieferten und bislang als unantastbar angesehenen Formen zu emanzipieren, mit anderen Worten, eine mehr akademische Behandlung des Gegenstandes eintreten zu lassen, das erhellt m. E. am besten aus der Betrachtung der Stellung, die die offizielle diplomirte Wissenschaft des Aktuars einer Erscheinung wie der deutschen Arbeiterversicherung gegenüber einnimmt. Die aktuarielle Wissenschaft, wie sie historisch geworden ist, erscheint ausschliesslich auf die Verhältnisse der privaten Vericherungsgesellschaften zugeschnitten, derart, dass ihre Konstruktionen und Forderungen an gewisse Voraussetzungen geknüpft sind, die sich eben als charakteristisch für das Geschäft der Privatversicherung erweisen. Der Aktuar ist sich aber der Relativität seiner Wissenschaft in diesem Sinne meist gar nicht bewusst und neigt daher zu einer grundsätzlichen Verurteilung derjenigen Berechnungsmethoden, welche bei der staatlich geregelten Zwangsversicherung zur Anwendung kommen, wo die betreffenden Voraussetzungen nicht gegeben sind und daher gewisse Abweichungen von der Praxis der privaten Gesellschaften möglich und vielfach geboten erscheinen. Solche Abweichungen betrachtet nun der Aktuar als Verletzung feststehender über jeden Zweifel erhabener Prinzipien, die ganze Einrichtung der Arbeiterversicherung, wie sie z. B. in Deutschland besteht, hält er vom versicherungstechnischen Standpunkte aus für unwissenschaftlich. Darauf sind zum grössten Teil die Kritiken zurückzuführen, die von englischer, französischer, belgischer Seite gegen die deutsche Arbeiterversicherung erhoben wurden. Gewiss ist diese in versicherungstechnischer Beziehung nicht einwandfrei, hier kommt es aber lediglich darauf an, die Unhaltbarkeit derjenigen grundsätzlichen Angriffe zu konstatieren, deren Urheber gewissen Regeln der Lebensversicherungsrechnung eine absolute Gültigkeit beilegen, ohne zu prüfen, unter welchen Voraussetzungen diese Regeln abgeleitet sind. Auch in England, wo die traditionelle Versicherungsmathematik und ihre Hüter — die Aktuare — hoch in Ehren gehalten werden, wird ihnen gelegentlich vorgeworfen, zu sehr an der Schablone festzuhalten und kein Verständnis für Einrich-

tungen zu zeigen, die zum Teil denselben Zwecken wie die privaten Versicherungsgesellschaften dienen, aber im übrigen wesentlich anders geartet erscheinen.* Solange aber die Lebensversicherungsmathematik etwa an Handelshochschulen oder gar in Anstalten, die zur ausschliessliche Aufgabe die Ausbildung von Versicherungstechnikern haben, gepflegt wird, wird dieser Disziplin eine gewisse Enge der Auffassung stets eigentümlich bleiben. Lehrer und Schüler sind dann eben meist Versich. *techniker* in jenem Sinne, in welchem auch sonstige Techniker, von führenden Geistern abgesehen, vielfach der Breite des Blickes, der Unabhängigkeit des Urteils und der Fähigkeit ermangeln, an eine bestimmte Aufgabe voraussetzungslos heranzutreten, und eher nach der Seite der Routine hinneigen. Dieser Gefahr sind die Dozenten und Hörer der Universitäten sicher in geringerem Grade ausgesetzt, und darum dürfte die Einfügung der Versicherungsmathematik in den Kreis der an den Universitäten vertretenen Fächer vor allem diesem Wissenszweig selbst zum Nutzen gereichen.

Sodann ist zu bedenken, dass, obschon die Versicherungsmathematik etwas neben der Versicherungsökonomik und dem Versicherungsrecht für sich bestehendes ist, sie sich mit diesen beiden Wissensgebieten doch wiederum in mannigfacher Weise berührt, und es wäre ein Leichtes, zu zeigen, dass gewisse verfehlte oder unzulängliche juristische Konstruktionen sowie gewisse unhaltbare Forderungen, mit denen von nationalökonomischer Seite an die Versicherung herangetreten wird, aus einer mangelhaften Vertrautheit mit den Grundsätzen der Lebensversicherungsrechnung entspringen.† Die Fragen der Gesetzgebung, und zwar sowohl im Bereiche der privaten wie der öffentlich-rechtlichen Versicherung, sind mit der Versicherungsmathematik sehr oft aufs engste verquickt, und eine Arbeitsteilung auf diesem Gebiete, die dahin geht, dass das Mathematische ausgeschieden und dem Versicherungstechniker zugewiesen wird, während der Jurist und Nationalökonom das übrige für sich in Anspruch nehmen, ist dazu angetan, nicht unerhebliche Missstände zu erzeugen. Denn es besteht dabei die Gefahr, dass die Versicherungsmathematik entweder nicht zu ihrem Rechte gelangt oder, wenn auch bona fide, dazu gemissbraucht wird, die vortrefflichsten legislatorischen Absichten zu vereiteln. Man beugt sich vor dem Urteil des Mathematikers, der dieses oder jenes für „versicherungstechnisch unzulässig" erklärt. Und was kann diesem Urteil derjenige entgegenhalten, für den die Versicherungsmathematik ein Buch mit sieben Siegeln ist? Gerade um diese Abhängigkeit von dem Aktuar zu brechen, ist es wichtig, dass einige Vertrautheit wenigstens mit den Anfangsgründen der Versicherungsrechnung unter den Juristen mehr als seither verbreitet sei. Es kommt namentlich darauf an, dem Juristen, der berufen ist, an der Gesetzgebung und der Verwaltung, die das Versicherungswesen betreffen, mitzuwirken, die richtige Erkenntnis beizubringen, wie es um die Versicherungsrechnung im allgemeinen bestellt ist. Es gilt insbesondere, dem Juristen zu zeigen, was an der Versicherungsrechnung, wenn sie in die Praxis umgesetzt wird, logisch notwendig und was willkürlich, relativ, blos empirisch begründet ist. Es genügt nicht, den in Rede stehenden Sachverhalt in abstracto klarzulegen. Denn Gedanken und Gesichtspunkte, die man sich auf diese Weise aneignet, sind zumeist leicht vergessen

* *Sidney und Beatrice Webb*, „Theorie und Praxis der englischen Gewerkvereine", deutsch von C. Hugo. Stuttgart 1898. 1. Bd., S. 138-139. Fussnote.

† „Ohne die erforderlichen mathematischen Grundlagen", sagt *Reuling* („Die Grundlagen der Lebensversicherung", Berlin 1901, S. 8), „stehen alle Untersuchungen über die Probleme des Lebensversicherungsrechtes, so zu sagen, in der Luft."

und können sich auf keinen Fall derart dem Verstand einprägen, dass er sich nach ihnen in praktischen Fragen zu richten vermöchte. Soll sich aber der Betreffende, so zu sagen, fürs Leben eine korrekte Vorstellung von der Methode der Versicherungsrechnung und von der Tragweite ihrer Lehren bilden — eine Vorstellung, die gleichsam als Direktive für die Beurteilung konkreter Fälle dienen soll — so muss er sich zuvor zum mindesten durch die Hauptpartien der Disziplin durchgearbeitet haben. Die Einzelheiten wird er eventuell nicht behalten, aber die Grundgedanken werden ihm geläufig bleiben, und der Versicherungstechniker wird ihm nicht als Priester einer Religion erscheinen, in deren Mysterien er nicht eingeweiht ist. Die obigen Bemerkungen über den Zusammenhang zwischen der Versicherungsmathematik auf der einen Seite und dem Versicherungsrecht und der Versicherungsökonomik auf der anderen Seite, sowie der beigefügte Hinweis auf den Nutzen versicherungsmathematischer Kenntnisse für den Juristen führen gleichfalls zu dem Ergebnis, dass man am besten tut, die Pflege der Versicherungsmathematik den Universitäten zu überlassen. Es kann nur erwünscht sein, dass dem Juristen, und zwar in einer Periode seines Lebens, wo die Reminiszenzen an den in der Schule genossenen mathematischen Unterricht noch lebendig sind, Gelegenheit geboten wird, sich ein gewisses Minimum von versicherungsmathematischen Kenntnissen anzueignen. Speziell dafür, dass die Universitäten in höherem Grade als die technischen Hochschulen sich dazu eignen, als Pflegestätten der Versicherungsmathematik zu dienen, spricht ausser der Rücksicht auf die Juristen und auf die Nationalökonomen auch noch eine ähnliche Rücksicht auf die Studierenden der Mathematik, da gerade diese in erster Linie das Bedürfnis empfinden werden, nebenbei versicherungsmathematische Studien zu treiben.

Man braucht in diesem Zusammenhang kaum auf den Einwurf des näheren einzugehen, es könne die Dignität der Universitätswissenschaft daran Schaden nehmen, dass sich ihr ein Fach angliedert, das einen so ausgesprochenen praktischen Charakter hat wie die Versicherungsmathematik. Der Einwurf wäre bis zu einem gewissen Grad verständlich, wenn er von mathematischer Seite käme. Denn das genannte Fach erscheint der Mathematik gegenüber im wesentlichen doch immer blos als „Anwendung". Die massgebenden mathematischen Kreise zeigen indessen heutzutage keineswegs die Tendenz, das wissenschaftliche Gebiet, das sie vertreten, gegen den Ansturm der Praxis in diesem Sinne zu verteidigen, und die Aufnahme der Versicherungsmathematik in das grosse Kollektivwerk der deutschen Mathematiker, die „Encyclopädie der mathematischen Wissenschaften", zeugt von einer anerkennenswerten Vorurteilslosigkeit in dieser Beziehung. Wenn aber jener Einwurf von den Vertretern der Nationalökonomie gemacht wird, so muss es einen überraschen. Denn gerade im Bereich dieser Wissenschaft ist eine Demarkationslinie zwischen dem, was von „wissenschaftlichem", und dem, was von „blos praktischem" Interesse ist, am schwersten zu ziehen. Ist es denn nicht üblich, in nationalökonomischen Spezialvorlesungen die Einzelheiten etwa des Kredits, des Handels, des Börsenwesens zu behandeln? Und doch bildet das Verhältnis dieser mehr „technischen" Fragen zu den entsprechenden volkswirtschaftlichen, d. h. mehr abstrakten, Lehren ein Analogon zu der Beziehung, in welcher die Versicherungsmathematik zur Versicherungsökonomik steht.

Es liegt in der Natur der Sache, dass der versicherungsmathematische Unterricht sich an den Universitäten im allgemeinen in engen Grenzen halten muss. Es genügt vollkommen, wenn eine einzige Uni-

versität in Deutschland, wie zur Zeit Göttingen, die spezielle Aufgabe übernimmt, Versicherungsmathematiker von Fach auszubilden und danach die Vorlesungen über dieses Gebiet und die sich daran anschliessenden Übungen einrichtet. Für die übrigen Universitäten kann es sich im wesentlichen blos darum handeln, dass in jedem zweiten oder vierten Semester etwa eine zwei-, höchstens dreistündige Vorlesung über die mathematischen und statistischen Grundlagen der Lebensversicherung im weitesten Sinne (d. h. einschliesslich der Rentenversicherung) gehalten wird, wobei die prinzipiellen Gesichtspunkte in den Vordergrund treten müssen und die Darstellung eine durchaus elementare sein sollte. Eine Ergänzung der Vorlesung durch praktische Übungen ist gerade auf diesem Gebiete sehr erwünscht.

ABSTRACT.

ON THE INSTRUCTION IN INSURANCE MATHEMATICS IN GERMAN UNIVERSITIES.

By Prof. L. von Bortkiewicz.

The methods of insurance mathematics, especially those observed in practice, have almost all a decided elementary character. Experience teaches, however, that even mathematicians by profession have frequent difficulty to familiarize themselves with this unaccustomed field, but that they can be considerably guided by systematic instruction. Such instruction is particularly necessary for those whose exercise of mathematical reflection is limited to what they can acquire in this respect in colleges or other high schools equal to a college in its mathematical teaching.

It seems, therefore, advisable that occasion should be given in colleges to everybody interested to familiarize himself with the principles of insurance mathematics. The universities can be regarded as most adapted for such instruction, and especially so, as it falls to their duty to teach advanced mathematics as well as law. Those pursuing the latter branch, and also students of political science, will in such a way sooner be able, by hearing a lecture on insurance mathematics, to pass suitable judgment on this or that question in insurance matters, which perhaps may be required from them in their future career. They will then be able to avoid such errors, which nowadays are made only too often by jurists and political scientists, on account of their ignorance in the technical principles of insurance, especially life insurance. If the knowledge of the technical side of insurance would spread a little more among those who are called upon to assist in the work of extending insurance matters, the part which an actuary often takes under the present conditions would also be a different one. Not as often as now he would be approached with requests which plainly cannot be fulfilled, and on the other hand his expression of opinion as to what is admissible and what not regarding the techines of insurance would not be accepted as oracular utterances, as is often the case to-day.

In lectures regarding insurance mathematics it would be first of all necessary to impress upon the hearers that in this field very much is not based on mathematical groundwork, but on empiricism, habit, and independent action. By admitting insurance mathematics into the circle of subjects taught at universities, and by making it in this way an academic branch, a great benefit for the insurance mathematics itself, as also for its practical use, will be assured. By retracing insurance mathematics to fundamental principles its horizon would be widened, and—in case of need—it would help abolish the old method.

It has happened that some diplomaed actuaries have declared such institutions as the German obligatory insurance or certain English workman's organizations to be opposition to scientific principles because these actuaries found them to be based on methods differing from those generally accepted in the practice of speculative private insurance. They have not attended to the very important point, that those last methods are not of an absolute validity and that considering them as the only admissible ones implies the supposition of determinate conditions being fulfilled.

As desirable as the extension of the knowledge of insurance mathematics might be according to the aforesaid, it should, however, not be overlooked, when the question of regulating in detail the instruction of insurance mathematics comes up—I do not at all speak here of lectures in economics and jurisprudence of insurance—that this is a matter of only a remote branch of instruction, which for the theoretical interest offered will only be liked by very few among the students. Its practical importance, and the attendant requisite knowledge of the principles of insurance technics, are not so extended that a considerable number of jurists or mathematicians could be induced to participate in lectures on insurance mathematics; while the number of those whose special aim it is to study insurance technics is naturally very limited. It would be perfectly sufficient, therefore, for example, in Germany, if—as it is the case in fact—one certain university undertakes extensively the instruction of insurance mathematics in connection with economical insurance and insurance law.

At other universities a course of two, or mostly three, hours concerning the principles of insurance mathematics could be given; at larger universities perhaps every two semesters, at smaller universities perhaps every four semesters. It would further be advisable to complete these lectures by practicing especially arithmetical and algebraic lessons taken from the field of insurance.

RÉSUMÉ.

SUR L'ENSEIGNEMENT, DANS LES UNIVERSITÉS ALLEMANDES, DES MATHÉMATIQUES APPLIQUÉES AUX ASSURANCES.

Par le Prof. L. von Bortkiewicz.

Les méthodes mathématiques appliquées aux assurances, surtout celles qui sont employées en pratique, ont presque toutes un caractère élementaire prononcé. L'expérience démontre toutefois qu'il est souvent dificile, même aux mathématiciens de profession, de se familiariser avec cette branche inaccontumée des mathématiques, à moins d'être guidés par une instruction systématique. Une instruction de ce genre est particulièrement nécessaire à ceux dont la pratique des mathématiques est limitée à ce qu'ils ont pu en apprendre dans les collèges, lycées ou institutions secondaires du même ordre.

Il semble donc recommandable, dans les collèges de faciliter la connaissance des principes mathématiques d'assurance à quiconque s'y intéresserait. Les universités peuvent être considérées le plus appropriées à ce genre d'instruction, surtout qu'il est de leur ressort d'enseigner les mathématiques ainsi que le droit. Les étudiants en droit et en science politique pourraient ainsi en assistant à des cours de mathématiques appliquées aux assurances, juger en connaissance de cause, telle ou telle question d'assurance, qui peut se présenter à eux durant leur carrière et éviter les erreurs que commettent de nos jours les juristes et économistes, et qui peuvent être attribués à leur ignorance des principes techniques d'assurance, surtout d'assurance sur la vie.

Si la connaissance technique des assurances était un peu plus répandue parmi les personnes qui ont pour tâche de developper ces assurances, le rôle qu'un actuaire a souvent à jouer à l'heure actuelle serait aussi tout différent. On ne lui demanderait pas si fréquemment de faire l'impossible, et d'autre part on n'accepterait pas comme autant d'oracles ses expressions d'opinion sur ce qui est admissible ou non, concernant la technique des assurances.

Il serait avant tout nécessaire, dans des cours de mathématiques appliquées aux sciences de bien faire comprendre aux auditeurs que dans cette branche beaucoup de matières ne sont pas basées sur des nécessités mathématiques, mais sur l'empirisme, les conventions et le libre arbitre.

En admettant les mathématiques appliquées aux assurances parmi les sujets d'étude enseignés dans les universités, et en en faisant ainsi une branche académique, on assure un grand bénéfice non seulement à ces mathématiques, toutes spéciales, mais aussi à la pratique en général.

En ramenant aux principes les mathématiques appliquées aux assurances, leur compréhension en serait amplifiée, ce qui aidenait, en cas de besoin, à en amender la pratique routinière.

Il est arrivé que quelques actuaires diplômés ont declaré des institutions

telles que l'assurance obligatoire allemande ou de certaines sociétés de secours mutuels anglaises étaient au contraire des principes scientifiques, parceque ces actuaires les trouvaient basées sur des méthodes différant de celles qui sont acceptées en général dans la pratique de l'assurance spéculative privée. Elles ne se sont pas occupées du point extrêmement important que ces dernières méthodes ne sont pas d'une validité absolue et qu'en les considérant comme seules admissibles la supposition des conditions déterminées étant remplie reste acquise.

Quelque désirable que puisse être la propagation de la connaissance des mathématiques appliquées aux assurances, selon ce qui vient d'être dit, il ne faut cependant pas perdre de vue dans la réglementation des cours de mathématiques appliquées aux assurances (je ne parle pas ici des cours d'économie et de jurisprudence des assurances) qu'ils ne sont qu'une branche accessoire d'instruction qui vu l'intérêt théorique comparativement limité, ne sera appréciée que par peu d'étudiants. D'autre part, son importance pratique qui requient une connaissance assez complète des principes de la technique des assurances, n'est pas non plus assez étendue pour qu'un nombre de juristes ou de mathématiciens puisse être amené à prendre aux cours de mathématiques appliquées aux assurances; tandis que le nombre des personnes qui se livreront spécialement à l'étude des techniques d'assurances est naturellement très limité.

Il serait parconséquent tout à fait suffisant pour l'Allemagne, par exemple, comme cela existe, du reste qu'une seule université offrît des cours complets de mathématiques appliquées aux assurances de concert avec les cours d'économie et de jurisprudence d'assurance.

Dans d'autres universités on pourrait se contenter de cours de deux ou de trois heures au maximum, sur les principes des mathématiques appliquées aux assurances, cours qui ne se renouvelleraient que chaque deuxième semestre, par exemple, dans les universités les plus importantes, et chaque quatrième semestre dans les plus petites universités. Il serait de plus recommandable de compléter ces cours par la pratique de problèmes d'arithmétique et d'algèbre empruntès au domaine de l'assurance.

ON THE INSTRUCTION GIVEN IN UNIVERSITIES ON ACTUARIAL SUBJECTS.

BY

T. E. Young, B.A., F.R.A.S.,

Late President of the Institute of Actuaries.

The subject allotted to me for report is somewhat indefinite in its terms, but I assume that it comprehends not merely the more purely professional elements of the actuary's training, but also that more general, though cognate, equipment which is essential or adjunctive to the finished character of his capacity and varied work.

Spaciousness of canvas is but ill-fitted to the presentation of a vivid and compact picture, yet I trust I may be able to delineate the subject in some clear and definite form.

For the purpose of preparing an exhaustive report—an exhaustiveness strictly limited by the scanty materials now available, for the present position of the question is rather one of reasonable hope than of happy achievement—I have entered into a long and interesting correspondence with professors at all our universities in Great Britain and Ireland, and I gratefully tender to them my cordial acknowledgments of the courteous and helpful manner in which they have responded to my inquiries.

A natural delicacy of reserve suggests the omission of their names, though I purpose recording some of the personal and serviceable views which they have expressed. I may premise the statement that, although the actual accomplishment we desire is distinctly partial and fragmentary, the prospect is clearly evident of such a practical development of university teaching as will gradually induce its adaptation more and more precisely to the urgent requirements, in every form, of the age; since, from the nature and conditions of their being, universities constitute the reflex, so to speak, of the predominant needs and demands of the nation which they serve as centres of thought, learning, and directed energy, in every prominent phase, whether practical or speculative, of the life of the times. Universities, like all social organisms, where the effects of causes assume in turn a causative power, are, in their successive forms, the product of the general and established laws (or, more exactly phrased, the uniformities) of evolution, and hence it will prove both serviceable and instructive—explaining concurrently the past and anticipating the course of the future, whatever may be the transient aspects of the present—if I preface the detailed information I have collected with a brief exposition and historical survey.

The term university, neither from its etymology, nor from its primary and long-continued signification, involves any reference to learning or to a centre of learning: it exemplifies in an interesting form that process of specialization in language which is continually modifying the meaning and application of words by their gradual restriction to a more limited range of connotation than they originally possessed, in opposition to the force of generalization by which their area of significance is widened from a narrower scope.

As definitely bearing, therefore, upon the subject, I propose to devote a portion of this report to the historical development of universities, showing how successive forms of social requirements prevailing in the race or in national life have transformed the character and structure of these bodies, and how the persistent pressure of these changing needs of a complex civilization must modify all their future stages. This exposition will also exhibit the retrogressive or stationary tendencies which all ancient institutions present, and the modes of counteraction, effective in the past, which must be steadily and constantly applied.

The Latin word *Universus,* compounded of *unus* + *verto,* designated the whole of anything in contrast with the parts of which it was composed; and from this adjective was constructed the term *Universitas,* which was employed by the best classical writers. Cicero, for example, in the *De Natura Deorum,* refers to the *Universitas generis humani,* and again he employs the expression, *In Universitate Rerum,* as synonymous with the universe. We ourselves are familiar with the phrase, "The Universe of Thought," as comprehending the totality of thinkable things —the objects of sensation and the states of consciousness.

By the Roman jurists the expression *Universitas Bonorum* was applied to the entirety of a property as distinguished from the separate portions, *Singulæ Res,* of which it was formed.

Thus the term obtained the significance of a number of things, or persons, or rights vested in those persons, when considered as a whole. A number of individuals may obviously be regarded for certain legal purposes as a unity; and thus the notion of a collection of persons constituting a juristical person became accepted among Roman lawyers; and the term of *Universitas* so employed passed into current language as the designation of associations of individuals, which, it may be added, were also described by the names of *Collegia* and *Corpora.* It may be noted parenthetically that our terms, university, college, and corporation in modern usage are directly derived from these several origins, and although their range of meaning has been modified in modern times in consequence of changes in social life and effort, the words yet retain the fundamental character of their ancient formation, however altered by addition or limitation of connotation.

It is clearly established then that the essential nature of these *Universitates* of persons regarded as juristical persons consisted simply of the corporate capacity of acquiring and holding property; and that in no way was the character of the corporation indicated or distinguished by the special *purposes* for which that property might be secured and retained; the sole condition of the ascription of the term was determined by the right of owning corporate material possessions, and the adjunct of learning, and of the devotion of any acquired property to that specific purpose, was an accretion of subsequent ages.

Even in the Middle Ages the term *Universitas* was in no degree confined to scientific or learned associations, but was employed in the sense simply of a corporation whatever might be the objects for which its collective existence was designed.

So far then as research has extended, the word *Universitas* embodied the capital notion of a collective community, coherent through common purposes of any description, and entirely alien from the implication of alliance for the definite promotion of education or learning which the term now exclusively connotes.

I now proceed to trace the period of transition which terminated in the acquisition by the word *Universitas* or university of the specialized

function of education. For this purpose it is necessary to glance cursorily at the establishment of schools.

In the sixth century, schools were confined to monasteries and cathedrals where clerical instructors taught the "seven liberal arts" (as they were termed) as a preparatory course to the study of the Bible and ecclesiastical literature; and where the teaching was associated, directly or indirectly, with the concerns and interests of the Church. (I might here interpose the remark that, unlike most writers, I never employ the term "religious" as even approximately synonymous with "ecclesiastical," "priestly," or "clerical." Religion, justly defined, derives its source and being from spiritual perceptions, conceptions, and emotions, while this element is in no degree necessarily or essentially implicated in ecclesiasticism.)

Mr. Herbert Spencer, in his Principles of Sociology, has clearly indicated the causes which concentrated all primitive teaching in ecclesiastical or clerical hands. None of the life-sustaining duties, necessary in the community, was discharged by the priest, and thus he was provided with the requisite leisure for acquiring learning. In the earlier stages of civilization, again, a special kind of knowledge is supposed to be accessible which is not to be obtained from the pursuits of ordinary life; ghosts and gods were popularly believed to influence supremely, either beneficently or malignantly, the fortunes and actions of men; it was important consequently to acquire a knowledge of the proper mode of conduct which would procure their favor and avert their displeasure. This vital information the priest, from the nature of his functions, was deemed alone to possess, and thus he formed the reputed source from which this practical guidance might be obtained. Hence for these reasons—the competent ease for the acquisition of learning in mundane subjects, and an assumed exclusiveness of acquaintance with supramundane counsels—the priest primarily became the recognized teacher, and retained the title and prerogative for many ages, with the extension of the spirit of his authoritative position into modern times, notwithstanding the successive limitations which widened and more rational culture and the secularization (or, rather, the universality) of learning had imposed.

The prolonged predominance of any vigorous caste, especially during the early and plastic periods of the race, and the inheritance by the people of ancient and indurated habits of thought and deference, possess a perpetuating power even though the original massiveness of the feeling be gradually attenuated to fragments. We perceive witnesses even now of the continued existence of this primitive belief; the residence of the students of our universities in colleges is a remnant of monastic customs; the daily attendance at formal chapel prayers is a survival of similar implication; the wearing of a college dress recalls the priestly gown; the enforcement of so-called religious tests, now abolished, embodied the ancient ecclesiastical dominion; and the practice still unhappily exists, though slowly diminishing, that a preference is usually shown for the appointment of clergymen to the headships of colleges and of public schools.

It may be parenthetically observed, as a corollary of history, that a broad and genuine national education, adequately adapted to the complex and varied conditions of modern life and industry, can only be achieved when this partial monopoly of teaching, with its biassed notions of culture, its adherence to the interests of an ecclesiastical system, and

its consequently retrogressive, or stationary, and unadjusting tendency, has been abolished—I mean, as a monopoly or preferential selection.

In the latter part of the eighth century, Charles, surnamed the Great, having attained the sole rulership of the Frankish dominions (in 771), enacted that schools should be opened throughout his kingdom in connection with every cathedral and monastery. This edict, history reports, was issued at the instance of our English ecclesiastic, Alcuin, with the coöperation of another priest. The clerical and exclusive spirit was naturally predominant in Alcuin—for no man, except the large-minded genius, can elevate himself above the Zeitgeist of his time—and determined the tenor of his counsel to the Emperor. Departure from the "seven liberal arts" was decisively deprecated, and the function of all teaching was proclaimed to consist in the preparation of men for the future life.

After the death of Charles, most of the schools confined their instruction to Latin and music; and though these limits were subsequently exceeded, the range of education was definitely restricted to the preliminary Trivium (grammar, logic, and rhetoric—the latter practically meaning the capacity of reading and writing Latin), and the enlarged Quadrivium, consisting of arithmetic (sufficient for the keeping of accounts), music (as an aid to Church worship), geometry (with a view to land-surveying—the monks possessing extensive properties), and astronomy to the extent necessary for the calculation of the dates of the Church's fasts and feasts and especially for the determination of the period of Easter. Thus the schools, from which the universities have arisen, were constituted in exclusive relationship to ecclesiastical dominance and service.

The departments of knowledge just described formed the "seven liberal arts." A student who advanced into the Quadrivium was regarded with wonder as a man of exceptional mental culture; and a verse of the eleventh century specially enshrines and honors this intellectual marvel in the words, "qui tria, qui septem, qui totum scibile novit."

At the close of the eleventh century or the commencement of the twelfth, a memorable Renaissance of learning dawned, and, irresistibly speeding its light into every quarter of the civilized word, penetrated the gloom, and enlightened the narrow fortunes, of many of the cathedral and monastic schools. Teachers of wide reputation, who not infrequently were not members of the school, settled in its vicinity for the purpose of lecturing upon logic and civil law, and students from all localities and countries collected as their disciples. As these centres of instruction became enlarged and organized, it was obviously found desirable and imperative to act in combination where the common interests thus created seemed likely to be injured or imperilled. Hence associations of teachers, or of students, or of both in unison, were established as a description of guild or trades' union, and received the title of "Universitas Scholarium," or "Universitas Discipulorum," or, if the union comprised both instructors and scholars, the more comprehensive name of "Universitas Magistrorum et Scholarium" (or Discipulorum).

This stage constitutes the first step in the development of all mediæval universities. The date of origination of these voluntary associations cannot be precisely determined, but they existed at Paris, Bologna, Oxford, and Cambridge before the close of the twelfth century. They started, as I have stated, in geographical relationship with the schools established by ecclesiastical bodies and presented in time a natural development of these schools.

The schools continued to exist under the authority of the cathedral or monastic system side by side with the guilds thus created by the teachers in the more advanced subjects of education. A mediæval university thus exhibited three successive phases of history: (1) A spontaneous and self-constituted guild of teachers and students; (2) the acquisition of legal privileges conferred by the State; and (3) the Papal official recognition of its degrees throughout Christendom.

Since the fourteenth century the term of university began to be adopted alone with the exclusive meaning of a community of teachers and scholars whose corporate existence had been sanctioned by civil or ecclesiastical authority, or by both. When, in earlier times, an institution was regarded as a centre of learning the designation employed was *Studium Generale*—the phrase not implying the inclusion of all branches of instruction in the scheme of education, but simply indicating the fact that the institution received students from all parts of the world. When a Studium Generale became incorporated, a university was thus formed, even although, as in the instance of the University of Bologna, the teaching was restricted to one particular department of knowledge. A long period was to elapse before the university comprised every faculty.

From the fifteenth century, wider and more liberal tendencies in the conception of the form and aims of education are increasingly observable, and among them may be especially mentioned the substitution of practical studies for studies simply of an abstract nature, and the extension of the gift of education beyond the classes to which it had been restricted in anterior times to every section of the people.

This abbreviated history presents the natural evolution of a modern university; its progressive advance, in Mr. Spencer's phrase, from the homogeneous to the heterogeneous in its scope of teaching; the sequence of a definite form from the indefinite; and its gradual emancipation from a more limited sphere of knowledge to a manifold variety in proportion as the expansion and necessities of the civil community and the advancement of science and general culture demanded a more pliant and potent instrument for intellectual and practical use. As a special illustration of this evolving process I may mention that gradually in the curriculum the several sciences gained a recognition of their practical utility in the same manner as law and medicine had already achieved. The application of mathematical science, for example, to the purposes of war and (as commercial intercourse progressed) to navigation enforced a more prominent attention in the educational system to an extended instruction in mathematics. The remedies for the primary needs of man—law for the definition and adjustment of his rights, medicine for the maintenance of a vigorous instrument of the mind—rank early in primitive teaching, and then, as industry and general mental interests, with the advance of civilization, develop, the cultivation of the practical arts and sciences promptly succeeds.

Since the future is simply the graduated development of the present, as the present has emerged in ordered sequence from the past, so the adaptation of our universities to predominant social needs must, though tardily and interruptedly, proceed.

Ancient historic foundations are naturally conservative; and the process of adjustment and expansion in face of their stolid inertia is a labour of prolonged and arduous extent. But, as in all departments of the universe, equilibration, or equivalence of correspondence between environment and function, is the sole condition of continued and prosperous power; and significant indications have in recent times appeared

in the foundation of vigorous and more pliantly adaptive universities—institutions designed from the outset in more precise harmony with the manifold and urgent requirements of the people—which should be recognized by our ancient universities as intimations that their prestige and authority will tend to fade and decay unless they, too, adjust their relations adequately to the spirit of the times and thus preserve that noble and memorable dower of national usefulness in the education of the race which they have inherited from an honoured and immemorial past.

I apologize for the defective nature of this compilation of historical records, collected from many sources; it seemed to me to be germane to our subject, at all events in relation to its probable future, to survey the varied and devious route which the practical conception of a university had traversed; and thus with the light reflected from the past, to divine the modes in which the modern university may most exactly and effectively fulfil its exalted mission in the formation of national character and the promotion of national ends in every commanding and useful form of activity.

I proceed now to present the results of my inquiries; and I will, for convenience, arrange the institutions in alphabetical order.

I. The University of Birmingham was constituted in the sixty-third year of the reign of our late Queen.

The prominent characteristic of the university is its faculty of commerce, which provides a systematic instruction extending over three years. The scheme comprises (1) subjects which are primarily of importance to the future man of business, and (2) subjects which are now recognized as elements of liberal culture and are also of special value to those engaged in commerce and manufacture. The subjects included in the faculty of commerce embrace the English language, literature, and history; two modern languages; mathematics; and either mechanics, chemistry, or physiography.

The degrees conferred are symbolized by "B.Com." and "M.Com." —Bachelor and Master of Commerce.

In the first year of study, commerce and accounting are included; in the second year, the higher parts of commerce and accounting, with public finance, and economic analysis; while in the third year, commerce and accounting are again treated in their wider aspects, with the methods of statistics.

It is an important practical feature of the faculty of commerce that students are required to examine the recent budgets of the country and the more valuable budget speeches.

I should add that the curriculum includes bookkeeping, the theory of compound interest, the theory of annuities, the theory of sinking funds, with an explanation of the modes of construction and the use of tables of interest, annuities, life funds, and sinking funds.

I have not had an opportunity of perusing any of the examination papers.

II. The University of Cambridge was founded before the close of the twelfth century; the exact date is uncertain in consequence of the destruction through fire of its most ancient archives.

Its professorships include one in political economy. I learn that an attempt was formerly made to deliver lectures on the theory of statistics by eminent men, but unfortunately the suggestion was not responded to by the students.

In May, 1902, I am informed, a syndicate (which corresponds to a committee), was appointed to report upon the facilities which could be provided for the study of economics, and my eminent informant states that this appointment was due to the presentation of an important memorial, and that public opinion is distinctly tending towards the promotion of increased attention to the practical and systematic recognition of studies allied (generally) to our work.

In the Cambridge University *Reporter* (published by authority) for the 10th of March, 1903, which my informant has kindly forwarded to me, a valuable and exhaustive report appears from the syndicate upon economics and political science. The report urges the increasing importance and complexity of economic issues; that their successful treatment depends upon the concurrent development of economic science which constitutes the instrument for their appreciation, analysis, and judgment; and that in this development universities should assume an adequate responsibility of instruction. The *Reporters* consequently urge that assistance should be rendered by the University of Cambridge in this direction; and in this suggestion the syndicate contemplates two classes of students—the one proposing to dedicate themselves to the professional study of economics—the other intending to engage practically in the higher branches of business or in public life. The university should provide, the syndicate proposes, for both these classes: the duty in the former case is admitted: a corresponding duty in the latter case is demanded by the requirements of the times. The desideratum is not technical instruction for any particular business, but an education of a superior type which shall qualify students for practical business hereafter in any department of work.

The syndicate suggests a three-years' course of training for undergraduates in this form of study. The adoption of the plan thus recommended, the syndicate adds, involves the creation of a new tripos, which it advocates, with the formation of a special board for economics and politics.

A separate class-list should be issued for this tripos; and the examination should be divided into two parts. A student who obtains honours in both parts of the examination for the economic tripos should be entitled to admission to the degree of B.A.

In Part II. of the examination, the proposed subjects, *inter alia*, comprise, the development of joint-stock companies, combinations and monopolies, trades' unions, and commercial fluctuations.

III. The University of Dublin (and Trinity College) was established in 1591, and the subject of political economy is assigned to a professor.

IV. The University of Edinburgh (founded in 1582) has a professorship of commercial and mercantile law and political economy.

In the department of "Scots Law" the subject of insurance from the legal aspect is treated.

I am informed that two important Scottish chambers of commerce have discussed the question of instituting a lectureship in mercantile law in the university, and that the project may possibly be effected.

V. The University of Glasgow was established in 1450 as a *Studium Generale* by Pope Nicholas V., and originally its teaching appears to have been confined to theology, canon law, and the arts.

I am informed that questions relating to the various descriptions

of insurance (including the probabilities of life) are considered in the classes of commercial law.

Dealing here, as elsewhere, with the forms of instruction only which are related in some measure to our subject, it appears that a professorship of political economy was founded as late as 1896. The preliminary examination for the attainment of a degree includes the use of logarithmic tables.

VI. The University of London was founded in 1836, and its prominent characteristics were that students were not required to be resident within its walls nor to be specially connected with the university, and that its degrees were open to all the world without distinction of creed.

A faculty of economics and political science has recently been established, which comprises the applications of statistical methods, public finance, methods of investigation, and the history, theory, and present system of insurance. The fundamental conceptions of the theory of probabilities are particularly mentioned, and the employment of graphic methods in statistics. The forms of business accounts and balance sheets in general, and of national accounts, are dealt with; and the modes of construction of sinking funds and of funds for the depreciation of values.

In the honours degree the subject of insurance just mentioned forms one of the optional subjects which a candidate may select.

The degrees conferred are termed B.Sc. (economics), and D.Sc. (economics)—Bachelor and Doctor of Science in Economics.

It may here be noticed that the London School of Economics and Political Science (incorporated in 1895) is a school of the University of London. Its general objects may be described as (1) the provision of opportunities for securing a regular and liberal course of education, especially in the branches of knowledge prescribed by the University of London; (2) the supply of a comprehensive scheme of training adapted to the needs of persons engaged, or intending to be engaged, in any description of administration and in any of the higher branches of commerce and industry; and (3) the rendering of assistance in the prosecution of those subjects of instruction which are comprised under the term of the higher commercial education.

Among the series of lectures may be mentioned three courses upon the mathematical and practical foundation of life assurance given by two fellows of the Institute of Actuaries.

VII. The University of Oxford, founded in 1149, possesses a professorship of political economy, proficiency in whose study enters into the Final Honours School of Literæ Humaniores and Modern History.

I learn that a proposal is now under discussion to institute a delegacy which should issue diplomas in economics; and it is surmised by my courteous informant that, if this course should be adopted, it would no doubt include many subjects bearing directly upon, at all events, some aspects of actuarial work in the more general sense.

VIII. The University of St. Andrews was established in 1412. It possesses a professorship of political economy.

An important scheme is now under consideration by the authorities for the constitution of a higher commercial education by the institution of a degree in commercial subjects.

It is suggested that two additions should be made to the existing plans of technical education—existing, that is to say, in other institutions —namely, one provided by a training furnished jointly by the university

and by certain courses in technical colleges, and the other by the university alone. The appropriate degree for proficiency has been proposed of "Econ.Bac.," or B.Sc. (in applied science and economics) or B.Sc. (in economics and the industrial sciences). Among the suggested subjects are mentioned the law of insurance, the law bearing upon the Workmen's Compensation Acts, Political Economy, Public Finance, and Local Government.

IX. The Victoria University (of Manchester) was founded in 1880; and the Owen's College (Manchester), the University College (Liverpool), and the Yorkshire College (Leeds) are incorporated in the university as colleges.

The professorships and lectureships comprise economics and political economy.

In the examination papers for 1902, I observe such questions as the following: "Give some account of the growth of friendly and other working class insurance societies;" "What are the particular difficulties attending the extension of their methods to old-age pensions?" "State the chief reasons for and against the rapid liquidation of the national debt?" "What is the budget?" "Describe the method of mean error, giving instances of its application?"

From this conspectus it will be observed that the actual advance made in the direction to which our hopes are tending is at present comparatively limited, and that in the University of London alone is the subject of insurance definitely included, though attention should be drawn to the curriculum prescribed in the University of Birmingham. The letters from professors, however, which I have received, as well as the larger tendencies which I have shown to exist towards a wide development of the sphere of our universities in relation to effective professional and business training, conclusively prove that commercial and industrial education, with the associated professions, are on the eve of an important and permanent expansion. One eminent professor trusts that the Institute of Actuaries will soon be brought into closeness of touch with the university he represents; another earnestly desires an efficient course of statistical teaching in every university and college; another expresses the hope that in his university it may become feasible to introduce lectures upon insurance into the regular course of study; and in a long, most interesting, and able letter which I have had the honour to receive from one of the most distinguished professors of economics in England—and, indeed, in the world—the sagacious views which he enounces are entirely in the direction of an enlarged and varied instruction in preparation for the higher modes of commercial and professional life.

I may justly conclude that the immediate future is vigorous with promise and hope of a more definite and adjusted correspondence between the conception of the true function of a university and the dominant claims which the modern aspect of civilization and the intricate and manifold forms of its professional, commercial, and industrial activities, present.

RÉSUMÉ.

DE L'INSTRUCTION DONNÉE DANS LES UNIVERSITÉS SUR LES SUJETS ACTUARIELS.

Par T. E. Young.

Ce rapport est fondé sur des considérations historiques et sur des résultats de recherches opérées par plusieurs universités de Grande Bretagne et d'Irlande.

L'auteur définit le terme Université et le trace dans son histoire à la corruption légale des juristes romains. Il décrit la période de transition pendant laquelle le nom acquit peu à peu sa signification moderne, puis il discute l'histoire des écoles et attribue aux ecclésiastiques les causes déterminantes de l'autorité exclusive de leur conception et administration.

Avec ces écoles prirent naissance des combinaisons ou « guilds » de professeurs et de disciples qui sous le nom d'Universités s'unirent pour la protection de leur intérêt commun. L'auteur décrit ensuite l'évolution de l'université du moyen âge et la manière dont le terme Université commença à acquérir sa signification actuelle.

Le but d'une Université devrait être de faire ressortir des fonctions essentielles de la Doctrine d'Évolution. Le conservatisme est inhérent aux anciennes traditions historiques.

L'auteur décrit ensuite l'étendue actuelle des études et les changements qu'on se propose d'adopter dans chaque Université du Royaume Uni pour orienter ces études dans une direction pratique et commerciale.

KURZE NOTIZ.

VON DEM IN UNIVERSITÄTEN GEGEBENEN UNTERRICHTE ÜBER ACTUARIAL-GEGENSTÄNDE.

Von T. E. Young.

Dieser Bericht ist auf geschichtlichen Betrachtungen und auf Resultaten der Nachforschungen verschiedener Universitäten Gross-Britanniens und Irlands aufgebaut.

Der Ausdruck „Universitäten" wird erklärt und seine Geschichte auf gesetzliche Verdorbenheit römischer Juristen zurückgeführt. Es wird der Uebergang beschrieben, während welchem der Name seine gegenwärtige Bedeutung erreichte; dann wird die Geschichte der Schulen besprochen und die Gründe, welche die ausschliessliche Autorität in ihrer Auffassung und Anwendung für Geistliche bestimmte.

Im Anschluss an die Schulen wurden Vereinigungen oder Zünfte von Lehrern und Schülern gegründet, welche sich unter der Bezeichnung „Universitäten" für die Beschützung der gemeinsamen Interessen verbanden.

Die Entwickelung der mittelalterlichen Universität wird dann beschrieben und die Art und Weise, wie der Ausdruck „Universität" seine gegenwärtige Bedeutung anzunehmen begann.

Dann wird der Fortschritt einer Universität dargestellt, um die erforderlichen Funktionen der Entwickelungs-Lehre auseinanderzusetzen.

Weiter spricht der Verfasser von dem Konservatismus, der der alt-historischen Grundlage anhaftet.

Schliesslich wird die gegenwärtige Ausdehnung der Laufbahn und die beabsichtigten Veränderungen im praktischen und kaufmännischen Sinne in ihren Einzelheiten vorgeführt im Zusammenhange mit einer jeden Universität des Königreiches.

NOTIZ BETREFFEND DEN UNTERRICHT DER VERSICHERUNGS-WISSENSCHAFT AUF DER UNIVERSITÄT.

Von

Prof. Dr. Chr. Moser,

Mathematiker des schweizerischen Industriedepartements in Bern.

Das öffentliche und private Versicherungswesen erfreut sich in allen Kulturstaaten der Erde wachsender Bedeutung. Fast überall sind die Summen, die in der Personen- und Sachenversicherung festgelegt sind, im Steigen begriffen. Auch der versicherungswissenschaftliche Universitäts-Unterricht hat Fortschritte zu verzeichnen, aber nur langsame. Vielfach mag daran, neben dem an manchen Orten etwas konservativen Charakter der höhern Lehranstalten, die mangelnde Erkenntnis über den Wert der Pflege und Vertiefung der Versicherungswissenschaft, vielfach aber auch der Mangel an geeigneten Lehrkräften Schuld sein. Ich finde es deshalb für zweckmässig, dass unser Kongress der Angelegenheit stets wohlwollende Beachtung schenkt, und verdankenswert, dass das Organisations-Komitee des New-Yorker Kongresses nicht ermangelt hat, eine bezügliche Frage dem Programme einzuverleiben.

Indem ich mich auf die Verhältnisse in der Schweiz und speziell auf die mir nahe liegenden Verhältnisse an der Universität Bern beschränke, will ich bemerken, dass alle schweizerischen Universitäten kantonal sind. Sie werden von den Kantonen eingerichtet, von ihnen unterhalten und geleitet. In dem kleinen Lande von 3,300,000 Einwohnern bestehen 6 Universitäten und eine Akademie. Es sind, wenn wir sie in der Reihenfolge ihrer Gründung aufzählen und in Klammern die Zahl der immatrikulierten Studierenden im Winter-Semester 1902-1903 hinzusetzen, die folgenden:

Basel (560), Zürich (899), Bern (1292), Genf (936), Lausanne (680), Freiburg im Uechtland (372) und die Akademie in Neuenburg (129).

Dazu kommt eine eidgenössische Anstalt, nämlich das Polytechnikum in Zürich (1065).

Von den im ganzen 5933 immatrikulierten Studierenden sind 3119, also über 52%, Ausländer, so dass unsern schweizerischen höhern Lehranstalten ein recht internationaler Charakter zukommt.

Obschon die Zahl der Vorlesungen, die speziell die Versicherungswissenschaften beschlagen, eine sehr geringe ist, so finden diese Fächer doch an einigen Orten Berücksichtigung. Schon in frühern Jahren wurde von einzelnen Professoren die Versicherungs-Mathematik zu Ehren gezogen. Ich darf da wohl an die Namen von Prof. H. Kinkelin in Basel, Prof. G. Zeuner, früher am eidgenössischen Polytechnikum in Zürich, und an andere Professoren der Mathematik erinnern. Eigene behördliche Anordnungen sind vor kurzem an der Universität Bern getroffen worden. Durch ein Reglement der Direktion des bernischen Unterrichtswesens, vom 30. Dezember 1901, wurde ein Mathematisch-Versicherungswissenschaftliches Seminar geschaffen. Die Institution der Seminarien hat in neuerer Zeit an den Universitäten überhaupt eine erfreuliche Zunahme zu verzeichnen. In den verschiedenen Fakultäten der Berner Universität bestehen z. B. gegenwärtig im ganzen nicht

weniger als 14 solcher Subsidiaranstalten. Hiervon sind das Mathematisch-Versicherungswissenschaftliche Seminar und das Statistische Seminar die beiden jüngsten. Ich erlaube mir, einige Bestimmungen des Reglements hier anzuführen:

Das Mathematisch-Versicherungswissenschaftliche Seminar an der Universität Bern bezweckt die theoretische und praktische Ausbildung seiner Mitglieder in den mathematisch-versicherungswissenschaftlichen und den damit verwandten Fächern (§ 1). Das Seminar zerfällt je nach dem Bedürfnis in Sektionen. Für jede Sektion sind die Übungsstunden besonders festzusetzen. In diesen werden sowohl die verschiedenen Gebiete im Anschluss an die Vorlesungen behandelt, als auch Arbeiten über freigewählte Themata vorgetragen, besprochen und beurteilt. Die Übungen dienen insbesondere auch der Anleitung zu wissenschaftlichen Arbeiten, der Anleitung zur Benutzung der technischen Hülfsmittel für die Versicherungsrechnung und die Versicherungsstatistik, der Anleitung zur selbständigen Erstellung von versicherungstechnischen Bilanzen und Fondsprüfungen, sowie der Besprechung literarischer Erscheinungen auf dem Gebiete der mathematischen und technischen Versicherungswissenschaft (§ 3). Jeder immatrikulierte Hörer der Universität Bern kann auf persönliche Anmeldung bei einem der Vorsteher hin als Mitglied sich aufnehmen lassen; dadurch verpflichtet er sich, die Übungen der betreffenden Sektion unausgesetzt zu besuchen und dem Seminar selbständige schriftliche Arbeiten einzureichen. Zur Prämiierung der besten schriftlichen Arbeiten der Mitglieder kann aus dem Schulsäckelfonds jedes Semester je ein erster und ein zweiter Preis ausgerichtet werden. Die Zuerkennung erfolgt durch die Direktion des Unterrichtswesens auf den motivierten Antrag der leitenden Professoren (§ 4).

Mit dem Seminar ist eine Seminarbibliothek verbunden. Kaum auf einem Gebiete ist die Literatur so zerstreut, und namentlich die ältere Literatur so schwer zugänglich, wie auf demjenigen der Versicherungswissenschaft. Man darf es deshalb lebhaft begrüssen, wenn auch die Universitäten Sammelstellen werden. Bereicherungen der Bibliothek des Mathematisch-Versicherungswissenschaftlichen Seminars an der Universität Bern sind sehr willkommen, und ich möchte sie den Mitgliedern des Kongresses für Zusendung ihrer Veröffentlichungen bestens empfehlen. Freundliche Zuwendungen sind ihr schon von einigen Seiten, z. B. auch vom eidgenössischen Versicherungsamte in Bern, zu teil geworden.

Zum Schlusse möge noch betont werden, dass für die spätere Lebens- und Berufsstellung vieler Studierenden die Kenntnis der Grundzüge des Versicherungswesens erwünscht ist und dies immer mehr wird. Wir erinnern nur an das Amt des Richters, des Mediziners und des Lehrers. Gerade die Universitäten, welche die Vorbildung dieser Personen übernehmen, haben deshalb allen Grund, Vorsorge zu treffen, um den Studierenden eine versicherungswissenschaftliche Bildung zu ermöglichen.

ABSTRACT.

ON THE INSTRUCTION GIVEN IN UNIVERSITIES ON ACTUARIAL SUBJECTS.

By C. Moser.

The author furnishes a communication concerning the teaching in the Swiss Universities, and principally at the University of Berne, of actuarial science.

Among the fourteen special departments of this University, which are called seminaries, there is one devoted to the teaching of actuarial science. The regulations concerning this subject, enacted by the Director of Public Instruction for the Canton of Berne, are under date of December 30, 1901.

RÉSUMÉ.

INSTRUCTION DONNÉE DANS LES UNIVERSITÉS SUR LES SUJETS TRAITÉS PAR LES ACTUAIRES.

Par C. Moser.

L'auteur fait une communication concernant l'instruction universitaire des sciences actuarielles en Suisse et notamment à l'Université de Berne.

Parmi les 14 institutions spéciales de cette Université, appelées séminaires, il s'en trouve un de ceux-ci qui est destiné à l'instruction des sciences actuarielles. Le règlement y relatif, édicté par la Direction de l'Instruction publique du Canton de Berne, est daté du 30 décembre 1901.

ON INSTRUCTION GIVEN IN UNIVERSITIES AND COLLEGES ON ACTUARIAL SUBJECTS.

BY

JOSEPH A. DE BOER, A.M.

President of the National Life Ins. Co.

With a view to fairly covering the whole ground, I duly prepared and sent to the presidents of one hundred selected universities and colleges a communication in which notice was given that the present International Congress of Actuaries desired a report upon the Instruction given in Universities and Colleges of the United States on Actuarial Subjects and requesting (1) exact advice as to what had been done, if anything, with actuarial subjects in their university or college; (2) catalogues with marked matter relating to such instruction; (3) published documents, issued in connection with or as the outcome of such work; and (4) the names of any lecturers, with titles of their lectures and the dates of their delivery. Replies were received from something like seventy of the institutions addressed, but no printed matter except general and special catalogues. After memoranda had been prepared from the material and correspondence thus obtained, each institution was sent a note, indicating all the information at hand upon the subject under consideration, with the request that same be duly checked and returned with any corrections, amendments or additions minuted thereon. Upon such final advices from the universities and colleges, so received direct, this report is accordingly founded.

At the outset, attention is directed to the fact that no attempt was made to distinguish between a university and a college and that no definition was laid down of exactly what the term "actuarial subjects" was intended to include. It seemed best to me, in the present condition of such instruction, which is really in its inception, to make the enquiry general and for the same reason it seems also advisable to report to you *all* the information which was thus obtained.

I. Certain institutions report no courses of instruction, no special lectures and make no mention in regard to actuarial subjects of any kind. Doubtless insurance in some of its phases, at least, and actuarial subjects in some directions are referred to or touched upon in connection with other subjects, regularly taught. Certainly some part of the theory, as, for example, the law of probabilities, is covered by them all in their courses in higher mathematics and, in other connections, this would be true, also, of courses in political economy, sociology, statistics, biometry, medicine and law. But such chance references can hardly be considered as in the light of a definite instruction and, where this is the case, it is probably correct to speak of these institutions as giving neither courses nor instruction on actuarial subjects. Under this head, accordingly, are reported the following institutions, some of which, were all the facts known, would probably fall within the group next following:

Middlebury College, University of Alabama, University of Texas, Bowdoin College, University of South Carolina, Smith College, Uni-

versity of Utah, Fisk University, University of Arizona, University of Washington, University of Rochester, U. S. Naval Academy, Leland Stanford, Jr., University, Hampton Normal Institute, University of Wyoming, Princeton College, Massachusetts Institute of Technology, Wesleyan University, University of Mississippi, University of Oregon, Boston University, West Point Military Academy, Iowa State College, Polytechnic Institute, Brooklyn, Clark University, Vassar College, Johns Hopkins University, Holy Cross College, University of Maine, Girard College, Hamilton College, Howard University, Ohio Wesleyan, Oberlin College, West Virginia University, University of North Carolina, Notre Dame, Armour Institute of Technology, University of Minnesota, Kentucky University, Drake University, College of St. Francis Xavier, University of New Mexico, Tuskegee Normal and Industrial Institute and *Beloit College.*

The above forty-five institutions, according to the best available sources of information, enrolled 37,137 students in all branches and departments of instruction during 1902.

II. Some institutions report specific reference, as they view it, to work done or touched upon, related to actuarial subjects, which term is usually taken to mean by them insurance in some of its forms. Others are contemplating the early introduction of courses, lectures or instruction. I have thought it best simply to report the facts briefly in their case, omitting them from the above list for the sole reason that they made some definite reply to the enquiries addressed, relating to instruction on actuarial subjects:

At *Union College,* Schenectady, N. Y., the course in Economics touches it. *The University of Vermont* has a six weeks' course in Statistics, of three hours each week, which they hope to enlarge as soon as opportunity permits. The *Ohio State University* has no course of instruction, but lectures have been given at said institution as follows: (a) *"Life Insurance"*, Henry Bohl, Superintendent of Agencies for the Prudential; (b) *"A B C of Insurance"*, L. Durstine of the New York Life; (c) *"Life Insurance as a Social and Economic Factor in the Life of the Community"*, W. I. Hamilton of the Prudential; (d) *"Fire Insurance"*, C. Woodbury, Adjuster Queen Insurance Company; and (e) *"State Control of Insurance"*, W. S. Matthews, Ex-Superintendent of Insurance for Ohio. The *University of Nebraska* reports that in 1903-4 it will offer courses in Biometry, which includes the subject of actuaries, while the *University of the South,* located at Sewanee, Tenn., replies that courses of some kind on the general subject will be effected at an early date. From the *University of Pennsylvania* comes the information that it gives no instruction whatever on actuarial subjects, but Prof. Simon N. Patten adds: "Considering the inauguration of courses on insurance and actuarial science here, but until our enlarged endowment is available we can scarcely hope to offer this class of instruction." There is no regular work done at the *University of Georgia,* but last year, so the report goes, Mr. R. L. Foreman, an alumnus, "gave a talk on insurance and secured six of the best men in the graduating class for the Equitable's Summer School." From the *University of Oklahoma* comes the announcement that its intent is "to cover this subject in a school of commerce to be established," while at *Syracuse University* "insurance is treated incidentally in a course of lectures on practical sociology," and in the *Pennsylvania State College* "only in a general way in higher mathematics." At *Williams College* the sole instruction given in the subject

is reported as follows: "In connection with mathematics, gives the usual instruction in the law of probabilities, also some training in the interpretation of vital statistics in the department of economics." The *State Unversity of Iowa* during the coming year will give a course in "The Mathematical Theory of Insurance," two hours through one semester (36 lectures), by Dr. John Van Etten Westfall, in the Department of Mathematics. This course is announced in connection with the School of Political and Social Science. *Cornell University** reports a lecture two years ago on "Life, Accident and Health Insurance" by H. J. Messenger, Ph.D. In that institution the field in question is touched upon in connection with other courses. Thus Professor Willcox in his course on statistics devotes about twelve lectures to vital statistics, while Professor Turner has from time to time given courses in "Insurance Mathematics," and devoted two hours to Theory of Probabilities with some application to insurance. The preceding work was limited to Juniors, Seniors and graduates. The *University of Chicago* is contemplating courses in actuarial subjects or in the line of insurance in its various forms. At present, however, their sole course touches only some of the economic aspects of life and fire insurance, and there is also a course in insurance law. Occasional lectures by practical insurance men have also been supplied, as, for example, "Life Insurance" by A. W. Kimball, General Agent of the Northwestern, and "Fire Insurance" by A. F. Dean, a manager of the Springfield Fire and Marine. Insurance has been treated to a limited extent in connection with their course in "Technique of Trade and Commerce," with special reference, apparently, to the construction and use of exchange, bond and annuity tables.

The *Northwestern University,* at Evanston, Ill., has a Department of Economics, Administration and Finance. Its "Seminary," so-called, is open to graduates and to a limited number of undergraduates who seem to the instructors competent to make original investigations. During 1901-1902 the leading subject was "Some Recent Developments in Fire Insurance" and during 1902-1903, "A Study of Some Phases of Life Insurance." Last year the lecture was given by Clarence P. Pellett, Ex-President of the Chicago Fire Underwriters' Association, and this year the lecture will be given by A. W. Kimball, Agent as aforesaid, subject, "Life Insurance." This department offers a prize this year of one hundred dollars for the best thesis on life insurance, the gift of Mr. N. W. Harris, a Chicago broker. Prof. John H. Gray, of the department, also reports that four students pursued work in life insurance during the year just closed, receiving credit of twelve semester hours, or two-fifths of their entire working time. These students "turned out essays of from 120 to 300 typewritten pages each," which were all highly commended by the Committee on Award. At the *University of Kansas,* Prof. Wm. E. Higgins gives a course of seven and a half hours a week for six weeks on Insurance in their School of Law. From the 12th annual catalogue issued by the *University of South Dakota,* co-educational, 404 students, the information is gathered that it contains a "College of Commerce," designed to give a knowledge of applied economics. The Commercial Course is open to graduates from the "Preparatory Business Course" and carries the degree of Bachelor of Commerce. It has not been possible to ascertain just what has been done, or how, but this reference is included for its testimony to the general fact that more and more consideration is being given by educators and by schools to the subject of insurance, but mainly in its practical or commercial aspects. The course of instruction

*See Paragraph, entitled "Some Concluding Observations."

in the above institution, as catalogued, includes: "INSURANCE. (1) Level Premium, Natural Premium and Assessment Systems of Life Insurance. (2) Level Premiums and Assessment Systems of Fire Insurance. (3) Principles of Marine Insurance. (4) General Nature of Policies issued under each system. (5) Examination of Insurance Contracts. (6) Examination of Insurance Companies' Reports." It is expected that the preceding ground can be covered in "3 hours a week for half a year."

In the case of all of the above institutions no information was afforded as to the actual total time given to instruction or to the actual number of students whom said instruction reached. The facts are reported in their bearing upon the evident progress which is being made in public and educational attention to the general subject of insurance and, especially life, first, and next, fire, insurance.

III. The last group on which report is made is one which includes those institutions in which more than average attention has been given to either actuarial or related subjects, and of some of which, at least, it may be said that the attention has been more or less direct and comprehensive.

University of Wisconsin. William A. Scott, Director of the School of Commerce, writes: "Very little work is done in this University on the mathematical side of the actuary's work. We have an excellent course in insurance conducted by our Prof. B. H. Meyer, in which the economic side of the subject and the nature of the insurance business is presented. Next year we shall add a course in which the mathematics of insurance will be more fully treated, although we do not expect to furnish a sufficiently extensive mathematical course to supply the needs of actuaries. We shall attempt simply to give enough of the mathematics of insurance to satisfy the needs of ordinary business men, who ought to know something about the subject of insurance." The catalogue does not adequately describe this course.

Yale University. This University has had lectures on life insurance in the past by its own instructors in the department of mathematical economics and statistics and also lectures on insurance law from men engaged in the actual business of insurance. The following extract is taken from the *Weekly Underwriter* of March 21, 1903:

"Occasional lecture courses on life and fire insurance are not unknown to American colleges, but the first attempt at systematic instruction is to be made at Yale University, as we announced last week. The list of instructors or lecturers engaged for the first year indicates the diversified character of the course that will be provided for such students as desire to add a theoretical knowledge of insurance to their other acquirements, either with a view of widening their education or entering the business of insurance as a vocation. The list embraces Vice-President Richard M. Bissell, of the Hartford Fire Insurance Company; Actuary John K. Gore, of the Prudential Insurance Company; Vice-President John M. Holcombe, of the Phoenix Mutual Life Insurance Company, and Vice-President John B. Lunger, of the Travelers' Insurance Company; and possibly there will be others. Messrs. Holcombe and Bissell are graduates of Yale, the first of the class of 1869, and the second of 1883. All are men eminently qualified to render instruction in their particular branches of insurance and will be notable accessions to the faculty of the great university. The introduction of the study of insurance in the curriculums of the colleges affords a new opportunity for young men seeking a pro-

fession and testifies to the growing importance of the science in the estimation of the world."

The above course will consist of one lecture and one recitation each week, the latter to test the student on the previous lecture and on assigned reading. A full outline of this proposed course of work has not been supplied.

Harvard University. Insurance matter is treated in connection with the Department of Economics. The catalogue for 1902-1903 supplies the following descriptions:

"STATISTICS. Theory, Method and Practice. Half Course. This course is intended to serve rather as an analysis of methods of research and sources of information than as a description of mere results. A brief history of statistics will be followed by an account of modes of collecting and tabulating census and other statistical material in the United States and abroad, the scientific use and interpretation of results by the mean, average, seriation, the theory of probability, etc. The main divisions of vital statistics, relative to births, marriage, morbidity and mortality, life tables, etc. . . . . will be considered in order." (Professor Wm. Z. Ripley.)

"A GENERAL VIEW OF INSURANCE. This course deals with insurance as a business and not as a branch of law. It begins with a discussion of the general purpose and economic value of insurance and proceeds to topics of practical importance in marine, fire and life underwriting, including the perils insured against, physical and moral hazard, applications, forms of policies, the duties of the various classes of agents, adjustment of losses, kinds of fraud, the elements of the mathematical calculations determining premiums, mutual and assessment policies, regulation by the public, and insurance by the public; and concludes with a survey of the history, literature and recent statistics of the subject." (Prof. Eugene Wambaugh.)

It is understood that the last cited course will be omitted in 1903-1904, but probably be restored in the following year; also that the course in statistics has been expanded into a full course, giving more time to the theory and technique of statistical matter.

University of Illinois. This institution has a course of university grade, running through four years, for training students on insurance work in various lines, "including that of actuaries." The work specifically concerned is mathematics, of which one requirement is calculus, preliminary to a course in statistics and statistical adjustments. This last course is given in two parts. Half of the time is devoted to the theory of statistical adjustments and half to problems whose character depends on the course the student is taking. The subject in insurance deals altogether with insurance statistics. Following this work is a course in accounting, supplemented by lectures from year to year by experts. This year there was given a course of six lectures by the manager of the Western Department of the New York Audit Company on topics of accounting. There is also a course in *Economics of Insurance,* described as follows: "The historical development of insurance and an extended discussion of its economic aspects; the various forms of insurance—fire, accident, employment, and life—from the standpoint of internal organization and from that of social service. Special attention is given to theories and practices relating to rates, policies, investments, corporate management, accounting, public supervision and insurance law." (Prof. Maurice H. Robinson.)

Last year President Jacob L. Greene of the Connecticut Mutual

gave a general lecture on insurance. Next year there will be several lectures on actuarial work of which an outline cannot now be given.

University of California. Instruction has been given "in the direction" of actuarial subjects for the last six years. During the first two years of this period, a small part of the general course in statistics was offered, including the "Theory of Probability," "Mortality Tables" and the methods of computing premiums and reserves, the whole subject matter being compressed into about six weeks' time of two periods per week. Four years ago an instructor in mathematics was detailed to assist in this work, and he instituted a course in the "Theory of Probability" with special reference to its application to life insurance, allowing two periods per week for half a year. Beginning next year (1903-1904), two courses will be offered on the mathematical side, one of one hour per week, for one semester, on the theory of probability, and one of three hours per week, for one semester, on actuarial computations. Data for mortality tables will still be treated, as a subject, in the course on general statistics, now three hours per week throughout the year. This will be expanded next year by "one laboratory or practice period." About eighteen hours will be given to this work, making, inclusive of the mathematical course, about ninety hours in all for special courses which "aim distinctly at this subject." Students intending to make a career in insurance are also advised to specialize on certain courses in mathematics and special economics. An attempt will also be made next year to include fire and marine insurance as well. *It is interesting to note* that the work above described is required of all students in "Commerce," and "is taken by about twelve others each year" with an expectancy of "a large increase in the future."

I am indebted for the above facts to Prof. Carl C. Plehn, Dean of the College of Commerce, who adds this note, that, so far as he is aware, "only one young man has yet gone from this course directly to an actuary's position, and one more aims to do so this year." Several other students, however, have entered the service of insurance companies in other capacities. In addition to the preceding there have been, once or twice each year, addresses by prominent insurance men, names not announced.

Dartmouth College. This institution opened in 1900 on a substantial foundation, "The Amos Tuck School of Administration and Finance." It offers a two years' course of study to men who are preparing themselves for business life and is open only to those who have a bachelor's degree, except that students of three years' undergraduate standing, of acceptable record, may specialize in the work of the first year. The student's preparation must include the elementary college work in Modern Languages, History, Political Science, Economics and Sociology. Two quotations on the aim of the school are important. "It has become evident that business to-day demands an increase in the number of well-trained and broad-minded men engaged in its service. The intense rivalry which characterizes industrial affairs requires the presence of men of keen insight, solid ability and the strictest integrity." The School does not hope to substitute its training for an actual apprenticeship in any business, but designs its courses "to prepare men for those more modern forms of business which have become so exacting as to require the same quality of academic training as the older professions." The School is also founded upon the considerations that, because business is "practical," this does not preclude teaching of its principles in a scientific manner, and that "the sound method seems to be to educate the man first and the business men afterwards." The Tuck School has adapted

its courses to both mercantile and manufacturing business, to journalism, to participation in municipal and civil affairs and to the consular service of the United States, including eighteen courses over all.

The subject of *Insurance* is found in the outline for the second year and was catalogued as follows for 1902-1903:

"A series of lectures designed to illustrate the practical workings of insurance as conducted to-day in all its important forms, with special reference to the United States. After a brief discussion of the economic conception of insurance, its history, development, problems, and social service, attention will be given to fire and casualty insurance, to employer's liability and corporate suretyship, but special study will be devoted to its most highly developed form in life insurance. This will involve consideration of fundamental assumptions, rate-making, policy construction, varied benefits, field management, advertisements, compensation, solicitation, medical selection, practical accounting, investments, office-work, corporate management, State supervision, insurance law, insurance by the State. A critical estimate will be presented of the leading theories and different practices related to these questions, the object being to give a just estimate of the business and a comprehensive knowledge of its present day workings."

The foregoing matter was partly covered last year by Jos. A. De Boer, President of the National Life Insurance Company, in six lectures upon the following subjects: (1) The Policy, or the Making of Life Insurance. (2) The Field, or the Sale of Life Insurance. (3) The Company, or the Care of Life Insurance. (4) Mathematical Selection. (5) Medical Selection. (6) Investment Selection. (12 hours.)

This work will probably be extended during the coming year. There will also be offered the following course by Prof. Edgar Van Deusen:

"*Economics of Insurance.* As introductory study of the economic theory of risk, followed by an examination of the nature and theory of insurance, a review of the rise and development of its different forms and systems, with a consideration of such included topics as insurable interests, premiums, policies, losses, averages, subrogation, etc.; also the economic effects of insurance, public supervision of companies and insurance law."

In addition to the preceding, Mr. Edward P. Comins, Public Accountant of Boston, Mass., gives a practical, as distinguished from a lecture, course in accounting and auditing; Mr. H. S. Person, a course in the critical study of the contributions of statistics to our knowledge of business methods and experience; and Mr. Charles A. Holden, a course in "Commercial Mathematics," including simple and compound interest calculations, fire, life and accident insurance tables and computations of rates, methods of computing exchange and stock and bond values, solution of problems in partnership and averaging of accounts, methods of quick computation and the use of calculating machines. The two gentlemen last named are regular instructors in the school.

University of Michigan. So far as I have been able to learn and can judge the matter from information supplied by the universities and colleges direct, no institution has apparently adopted and applied better arranged courses of instruction in the direction of actuarial subjects than the University of Michigan. This is doubtless due to the personal and intelligent interest which those subjects have received from James W. Glover, Ph.D., Assistant Professor of Mathematics in that University. The subject matter cannot be better presented than in the form in which

it appears in the various announcements and catalogues as published to cover the year of 1903-1904.

In an announcement of the courses in "Higher Commercial Education" appears this statement under the title of "Insurance and Statistics":

"The Courses in Insurance and Statistics are intended to cover in a fairly thorough manner the practices of actuaries and statisticians at the present time dealing with statistical material. Graphic and analytic processes are developed and illustrated by analyses of articles in the current actuarial, statistical and mathematical journals. The aim is to give the student a working knowledge of principles and the ability to apply them to new problems. It is also intended to take up the theory of compound interest and anuities and their application in dealing with modern large financial transactions. Among these may be mentioned the repayment of loans by annuities, as practiced by governments and corporations, the conversion of securities, the methods of trust companies in bidding on municipal bonds and other securities, the determination of the investment rate on securities, etc. In all this work the theory is applied to current transactions as found in the leading financial papers. The courses presenting this work are The Mathematics of Annuities and Insurance, The Mathematics of Insurance and Statistics, and The Theory of Annuities and Insurance (two courses)."

The courses offered by Dr. Glover appear on pages 67, 70 and 71 of the announcement made by the Department of Literature, Science and the Arts, 1903-1904. Course No. 53, following, is open to those who have completed courses in either plane trigonometry, algebra, plane analytic geometry and calculus or algebra, analytic geometry, calculus and mechanics. This course must precede Course No. 54, while Course No. 52, which should precede Course No. 53, is open only to those who have completed courses in plane trigonometry, algebra and plane analytic geometry, or else in algebra and analytic geometry, I. and II. The courses as described are as follows:

No. 51. Mathematics of Annuities and Insurance. (Political Economy and Sociology.)

"The aim of this course will be to present to students of economics and law, in a series of lectures, the mathematical processes involved and necessary to a clear understanding of many financial transactions which come up in ordinary practice, such as the definite notion of the annuity, repayment of loans by sinking funds, municipal bonds, and conversion of securities. Also the method of computing premiums on life insurance policies as based on mortality tables and a detailed examination of terms usually employed in such contracts, which must be understood by one who would intelligently undertake insurance legislation or insurance law. The treatment of the subject matter in this course will be confined to entrance algebra."

No. 52. Mathematics of Insurance and Statistics. (Mathematics.)

"The object of this course is to bring before the commercial student in as brief and concise a form as possible some examples of the legitimate applications of mathematics to the problems of economics and finance. That portion of the course relating to statistics ought also to be helpful to the student of biology and sociology. It is believed that

a working knowledge of these principles will prove of great assistance in drawing intelligent conclusions from statistical data. The following subjects will be considered: Interest, investment rates on stocks and bonds, theory of probability, averages, interpolation, index-numbers, correlation, fitting of curves to statistical data, mortality tables, annuities, method of computing life insurance net premiums, single and annual, insurance reserve, assessment insurance, fraternal insurance. If time permits, a brief account of workingmen's insurance in Germany, England, France and the United States, with especial reference to statistical data, will be given."

No. 53. Theory of Annuities and Insurance, I. (Political Economy and Sociology.)

"This course will be a fairly detailed development of the theory of simple and compound interest and the theory of probability, with their application to life insurance based upon tables of mortality. It is proposed to consider the following subjects: Annuities, pure endowments, mortality tables, life insurance based on same, method of computing net premiums, single, annual, and limited endowment insurance, commutation tables, reserve, surplus, loading, dividends, and various features pertaining to actuarial science. If time permits, the consideration of investment rates on stocks and bonds will be taken up."

No. 54. Theory of Annuities and Insurance, II. (Mathematics.)

"This course in a general way will be a continuation of the theory developed in Course 53. In particular, it will include the use and practice with the arithmometer in the construction of actuarial tables, the systematic fitting and adjusting of mortality tables and statistical data with special reference to Pearson's method of moments, the application of the Calculus of Finite Differences to actuarial questions, and a more elaborate consideration of the theory of insurance on several lives."

The University of Michigan also offers a "Summer Session" in the Department of Literature, Science and the Arts. That for 1903 included under the title of Political Economy and also of Mathematics a course by Dr. Glover, carrying a credit of two hours, on the subject of *"The Theory of Annuities and Insurance,"* described as follows:

"This course will take up the theory of simple and compound interest and the theory of probability, with their application to life insurance based upon tables of mortality. It is proposed to consider the following subjects: Annuities, pure endowments, mortality tables, life insurance based thereon; method of computing net premiums, single, annual and limited; endowment insurance, commutation tables, reserve, surplus, loading, and the various features pertaining to actuarial science. The treatment of the subject matter in this course will be confined to elementary algebra, as it is the aim during the Summer Session to bring it within the reach of many whose preparation is limited to such knowledge as may be gained from Course 2 in Mathematics taken simultaneously. It is hoped to interest those students of insurance whose time and opportunities are limited and who wish to acquire an elementary knowledge of actuarial theory."

The University also offers a three years' course in the Department of Law. In the third year of this course, in addition to the prescribed work, each student is required to elect and complete three out of

eleven subjects, in which are included lectures on Insurance by Melville M. Bigelow, Ph.D., and lectures on the Mathematics of Annuities and Insurance by Dr. Glover, described as follows:

"It is the aim of this course to present to the law student such information as to transactions in insurance, annuities and loans as must be understood by a lawyer who would intelligently deal with cases involving these matters. This will include a detailed explanation of the methods of computing insurance premiums based on the use of mortality tables and of such transactions as repayment of loans by sinking funds, and conversion of securities. The treatment requires no mathematics beyond elementary algebra."

The courses in Higher Commercial Education were yet further advanced by a number of special lectures during the current year of 1902-1903, of which four out of nine, as reported, were on subjects relating to insurance, in some or all of which actuarial matters may have been treated. These were as follows: (1) "Some Observations on the Practical Phases of Life Insurance," by C. M. Cartwright, Editor Western Underwriter; (2) "Fundamental Principles of Life Insurance," by Wilbur S. Tupper, Vice-President Conservative Life Insurance Company; (3) "The Organization of a Life Insurance Company," by George B. Peck, President of the Central Life Assurance Society; and (4) "A Comparative Estimate of the Strength of Financial Institutions," by N. J. Fischer, Agent of the Northwestern Mutual at Detroit.

All things considered, the foregoing statement for Michigan University represents the most comprehensive outline of courses in the direction of what have been popularly considered actuarial subjects, yet adopted by any university or college. I regret my inability to report with any certitude the number of students occupied in the courses referred to throughout this report.

It is also my memory that in recent years there have been lectures in other universities, Columbia for example, but as no response was received from same, no effort to recall them has been made.

Some Concluding Observations:

The above report shows that instruction on actuarial subjects has made but little headway in the universities and colleges of the United States, but it also indicates that this matter is beginning to invite and receive their attention more fully than has before been the case. Indeed, it is not necessary to go far back in the history of our university education before one comes to a total absence of insurance study as such, although of course there always was that training and instruction in multifarious subjects which are related to and supplemental of all actuarial work.

In the autumn of 1898, only five years ago, Charlton T. Lewis, of New York City, delivered at Cornell University a course of fifteen lectures on *The Principles of Insurance,* on which examinations were subsequently passed by the students. This course by Mr. Lewis is believed to be the first introduction of the subject into the course of study of any university of the United States and perhaps America. As this course was condensed, the subject of computing life contingencies and reserves was presented in bare outline only, but an effort was made to include the whole logical and statistical basis of insurance.

In the year following, 1899, Mr. Lewis was invited to deliver a course of lectures, limited to life insurance, at Harvard and at Columbia,

and he did so, giving fifteen lectures in each institution during February, March and August of that year. In that course he treated the valuation of life contingencies; the foundation, history and construction of mortality tables; the analysis of premiums, the methods of loadings and the principles of distributing surplus.

That these three courses by Mr. Lewis at Cornell, Harvard and Columbia were set up with singular ability and great authority there can be no doubt, and that they also stimulated attention to these subjects on the part of other schools is probably true. At all events, it appears to be the case, as stated above, that they represent the first introduction of these subjects in university course.

In a note received from Professor Glover, of Ann Arbor University, the suggestion was made that the university faculties of the country would doubtless like a report from the actuaries upon two points: First, what courses in pure actuarial instruction they would suggest to the faculties; and, next, what work will most likely prove valuable to that student of the subject who has a notion of entering into the service of insurance institutions. Both these questions have point, especially as actuarial instruction will either be a part of higher commercial education or else be included in post-graduate work in connection with studies in sociology, government, statistics, finance, political economy, etc. It is always a serious question for men who have completed the usual college course or who are about to elect their life work whether there will be use for men who pursue certain special courses, and this question is more important than that of what they shall study and, in fact, must be answered before the subject matter of a study, as well as the mode and kind of instruction, can be defined. I report both questions merely, with this brief statement of my own opinions, submitted with due deference and not without consideration of the subject.

The business of insurance in all of its branches, and all other forms of business as well, has become so large, so comprehensive and so important, commercially viewed, and engages the efforts and attentions of such large bodies of men, not only in the United States but throughout the whole civilized world, that it is simply out of the question further for great universities or schools of administration and finance not to provide instruction of some kind. Such instruction must perforce include consideration of the mathematical essentials. The time is also ripe for introducing such work in course, since much of the business of insurance itself has grown more scientific in its demands upon information and judgment and will demand more and more trained, as well as merely able, minds. Of course, the companies themselves are constantly training men for superior positions in this work, and doubtless there exists in most of the offices a species of civil service reform, including promotion, but frequently such training is one-sided and influenced by its own peculiar local prejudices. Again, in the direction of purely actuarial positions there would be competition from outside individuals who have independently worked their way up to positions, as now evidenced by many able consulting actuaries in public life. In this connection it seems fair to speak of the instruction in purely actuarial subjects which a large number of men have had for many years in the office of such a competent instructor as Mr. D. P. Fackler, of New York City, who for a long series of years has been an independent consulting actuary, and whose office may almost be said to have been the only school of actuaries for a quarter of a century in which an opportunity existed for both picking and training men whose character as well as ability spe-

cifically fitted them for the work. Their practical tuition has enabled them to command positions.

On the whole, however, I am of the opinion that the opportunity for easily finding lucrative or even fair positions in purely actuarial work would be very limited at the present time, and that, from this view only of the subject, the universities can hardly be expected to take up the study with any expectation of large support.

On the other hand, the field is always large for good men in agency work, and there are also the various positions in an office, in journalism, in supervision, all of which, everything else being equal, will best be filled and best handled by trained men of education, who have added to a thorough average discipline in the humanities the special work in well-arranged courses on insurance.

I think, therefore, that such courses should be rather popular than technical, and should cover the various subjects in all of their general aspects, giving attention to the study of their technical science in an elementary manner only, but with reading courses and special work added for those students who may wish to push their special education to a more considerable extent. It must be recognized, exactly, for example, as in the departments of engineering, military or naval training, etc., that the whole subject cannot be practically taught in the schools. While business now requires a trained service, the details of that service cannot be taught outside of that business. Our great modern business organizations, however, require preliminary training. This they may supply themselves out of their own material, but such a course may involve loss of time and is likely to produce, in any event, one-sided men. Insurance has its experience in all directions which can now be expressed in scientific form. I think it should recognize the limitations of its instruction and make the student recognize the limitations of his chance, but also that it is possible to make that experience a true "basis of instruction in business practice." It should invite the well-bred, thoroughly trained, broadly educated man. It has already done this, as evidenced by the very large number of college graduates engaged in all departments of the work. They have sought insurance work before it sought them. There seems to be no good reason why purely practical and unacademic work of grave importance to the world at large should not be based on specific scholarship and why insurance, which is now one of the greatest distributing factors in modern business methods, should not have its place somewhere in the courses of our institutions which pretend to provide technical instruction. Their business is both to educate character and to fit men for the business of the world. The student in insurance must take his chance with the rest. He may not land in insurance, but his chance will be better than that of an untrained man. He stands related as others have who studied law, or medicine, or theology, or engineering, or the classics, but finally landed in wholly unexpected positions. Every college class supplies its own record of surprises in this respect. The importance of actuarial work to insurance in all of its phases warrants the study of actuarial subjects by those who propose to engage in such work, and the importance of the insurance business to the world warrants academic and post-graduate attention to that subject. Such attention should be modern, practical and expert, and cover all the current business processes of calculating a rate, making a policy, securing its sale, providing for its maintenance and supervision of the business, and all of this, from start to finish, with a view to advancing the economic administration of all departments of insurance work for

the benefit of the people as a whole, whom it now concerns by the millions, and, when taken in all of its branches, almost without any exception whatsoever. Its function is universal.

My own present idea of what will cover for the average institution is fairly well expressed in the quotation for Dartmouth College above. If men elect insurance work for life, I should couple special reading and study with the regular instruction, fitting it to the man, and should further place him in touch with practical work at some office or in the field, always recognizing that in agency work the average man would likely find his first and perhaps his only opportunity. It is, however, especially in the field that there is always room for the man of character and the trained thinker, who can gain his experience later.

It will also be true that, if the universities take the matter in hand, they will influence the business of insurance toward a higher professionalism and contribute to the service of their time in this department of expanding human effort. The United States have not been second in the development, progress and volume of their various insurance work. In this business they have stimulated thought, energized action and achieved the most stupendous results. Their great universities are justified in giving some attention to its expert, scientific and practical exegesis, so far as possible, and may look confidently to the future for useful returns.

L'INSTRUCTION DONNÉE DANS LES UNIVERSITÉS SUR LES SUJETS TRAITÉS PAR LES ACTUAIRES.

Par J. A. de Boer.

La plus grande partie du rapport se base sur quelques soixante-dix réponses à plus d'une centaine de lettres adressées aux présidents des Universités élues et des Collèges américains. Les lettres demandaient des particularités de l'instruction dans les sujets actuariels, des catalogues marquant les matières de cette instruction, des documents et d'autres papiers publiés, — et les noms des Lecteurs aussi bien que leurs ressorts et personnels. On n'avait pas distingué les Universités d'avec les Collèges, ni donné la définition des « sujets actuariels.» Voilà toute l'information obtenue et représentée par le rapport, duquel voilà une condensation.

La plupart des Instituts ne touchent les « sujets actuariels » qu'à l'occasion d'autres sujets, par exemple Sociologie, Statistiques, Economie Publique, Biométrie, Médicine, Jurisprudence, Mathématiques Pures, etc. Il n'est pas supposé que ces cours fournissent la complète instruction dans la matière actuarielle. Le rapport compte 45 Instituts de ce genre avec d'environ 37 milliers d'Etudiants immatriculés en 1902.

Il y a dix-sept Instituts qui rapportent en détail les matières actuarielles touchées dans les leçons, c'est-à-dire, l'Assurance et ses formes diverses. Voici la déclaration la plus remarquable, faite par l'Université de Chicago, qui manie des cours de « sujets actuariels » ou d'Assurance sur la vie dans tous ses genres différents. Cependant il n'y a pas d'information précise du temps dévoué à telles instructions, ni du nombre actuel des étudiants touchés par ces instructions. Les faits ne sont cités que pour montrer la grande attention prêtée à l'heure qu'il est en public, et aussi bien par les Instituts d'Education, aux matières d'Assurance, principalement d'Assurance sur la vie, et en second lieu d'assurance contre l'incendie.

La troisième part du rapport fait mention de ces Instituts qui prêtent de l'attention à peu près épuisante aux « sujets actuariels » et ceux d'affinité; et fait un référé d'à peu près tout ce qui a été effectivement accompli dans ce cas par les Instituts des Etats Unis.

L'Université de Wisconsin offre un cours excellent d'Assurance, conduit par Professeur B. H. Meyer, qui donnera la part économique du sujet et la nécessité d'assurance, et qui comprendra en 1903-1904 les méthodes d'assurance.

L'Université Yale a des instructeurs spéciaux pour les leçons d'assurance sur la vie dans le département des Mathématiques, Economiques et Statistiques. Il y aura bientôt, dit le rapport, un cours systématique, théorique et pratique, conduits par des maîtres dans leurs ressorts, comme Richard M. Bisell, John K. Gore, John H. Holcombe, et John B. Lunger. Ce cours consistera d'une leçon et une répétition hebdomadaire, — celle-ci pour examiner les étudiants à l'égard de la leçon précédente. La littérature ne sera pas négligée.

L'Université Harvard traite l'assurance dans le département économique. Charlton T. Lewis a fait un cours de quinze leçons en 1889 des principes d'Assurance. Professeur Eugen Wambaugh offre un cours d'assurance qui traitera la négociation des espèces diverses d'assurance, inclusivement le calcul mathématique et la revue de la statistique récente. Ce cours ne s'est pas fait cette année, mais il paraîtra en 1904, et le cours de statistique sera étendu, en dévouant plus de temps aux affaires statistiques, théoriques et pratiques.

L'Université d'Illinois rapporte un cours universel, conduit par Professeur M. H. Robinson, pour introduire les étudiants dans les affaires d'assurance, les « matières actuarielles » inclues. Le calcul différentiel doit être préliminaire au cours statistique. De plus le cours comprendra la statistique d'assurance, le calcul et l'économie d'assurance, en prêtant attention spéciale à la théorie et la pratique de primes, polices, placement, direction des affaires, calcul, surveillance de l'Etat et législation pour l'assurance.

L'Université de Californie rapporte qu'il y a été des instructions sur les « Sujets actuariels » les six années passées. Les leçons de calcul des probabilités, tables de la mortalité, primes, quote-parts, réserves, et une part du cours général des statistiques, étaient serrées durant six semaines, deux leçons la semaine. Il y a quatre années qu'un cours de calcul de probabilités par rapport spécial à l'assurance sur la vie a été fait durant six mois, deux sections hebdomadaires. Il y aura deux cours en 1903-1904: 1. La théorie du calcul des probabilités, une heure la semaine par semestre, et 2. le calcul actuariel, trois heures la semaine par semestre. On tend à ajouter « une section du laboratoire ou de la pratique,» sans dire exactement ce qu'elle comprendra. Tout compte, cet institut offre d'environ quatre-vingt-dix heures dévouées aux cours spéciaux qui « tendent à ce sujet.»

Dartmouth Collège offre l'opportunité d'étudier les éléments théoriques et pratiques de la science actuarielle par des cours d'instructions alliés. Il y a plus d'opportunité et spéciale d'étudier les matières d'assurance dans l'École Amos Tuck pour l'Administration et les Finances, qui a été établie en 1900 sur une base substantielle pour préparer des jeunes hommes à l'entrée dans les « affaires » (en opposition aux sciences). Seulement des Baccalauréats sont admis, mais les jeunes hommes du dégré plus bas ont le droit de prouver leur qualification par ce qu'ils ont appris l'année première. L'École ne veut pas tenir lieu de l'apprentissage, elle n'est qu'une tentative pour enseigner « les affaires » pratiques dans une manière scientifique, en vertu de la thèse que les formes modernes des « affaires » ont besoin du même traitement que les sciences. L'Assurance est parmi ses dix-sept cours, et on s'est préparé à traiter généralement la théorie et la pratique et à ne pas négliger ses mathématiques, son économie et son calcul. Il est référé au rapport même pour plus d'information.

L'Université de Michigan, — pour la plupart sous l'habile direction du professeur extraordinaire James W. Glover, — offre tout compte les cours les plus harmonieux des « sujets actuariels.» Il faut lire le rapport principal pour connaître ces cours très excellents de la statistique, des mathématiques, et de la théorie d'assurance et des annuités. Dans ce résumé-là je ne veux pas du tout rendre justice à ces cours en citant des fragments; mais leurs buts sont déterminés si clairement dans l'annonce de cette Université des Cours d'Education Commercielle Supérieure, que je la cite à pur et à plein.

C'est le dessein des cours d'assurance et de statistique d'embrasser en traitant la matière statistique toute la pratique des actuaires d'aujourd'hui. Des procès graphiques et analytiques son développés et éclaircis en analysant des articles des journaux actuariels statistiques et mathématiques. Nous avons en vue d'instruire les étudiants des principes et du mode de les appliquer à d'autres problèmes, de plus de la théorie de l'anatocisme, des annuités et de leur application en traitant les grandes opérations financielles de nos jours. De telles opérations nous ne nommons que l'amortissement des dettes (de l'Etat ou des Corporations) par annuités, la conversion des sécurités, les méthodes des crédits mobiliers en soumissionnant les emprunts municipaux et d'autres, la détermination de la quote-part pour le placement des sécurités, etc. Dans toutes ces matières la théorie est appliquée aux négociations courantes, tirées des journaux financiels principaux.

En considérant cette annonce et référant au rapport principal, il apparaîtra sans doute que l'Université de Michigan a institué les plus amples cours des « sujets actuariels » que nous sachions de toutes les Universités ou Collèges des Etats.

A la fin le rapport donne quelques observations en disant d'abord que la plus grande attention est prêtée aujourd'hui aux sujets d'assurance, elle-même, ses espèces, et son application à la pratique, quoique ni la théorie ni la pratique des « sujets actuariels » à pur et à plein n'aient pas trouvé trop d'attention des Universités et Collèges des Etats. C'est dû en premier lieu à l'institution et le développement des écoles avancées, dévouées aux matières financielles; il est dû d'alors au distinct caractère d'économie publique que « les affaires » ont pris dans le Nouveau Monde peut-être à cause de l'organisation des associations par les compagnies et leurs efforts pour élever les hommes dont elles ont besoin pour leur ouvrage; — et il est dû de plus à la littérature populaire et scientifique du sujet, — aussi bien qu'au succès et l'influence des Sociétés actuaires, domestiques et étrangères.

En 1898 Monsieur C. T. Lewis a donné quinze leçons des « Principes d'Assurance » à Cornell, et autres quinze leçons l'année prochaine à Harvard et à Columbia. Suivant lui, ces leçons sont concises, mais elles avaient le grand poids de l'habilité singulière et de l'autorité de Monsieur Lewis, — et en effet elles étaient un essay scientifique pour présenter toute la base logique et statistique d'assurance.

Professeur Glover de l'Université de Michigan demande, quels cours d'instruction purement actuariels seraient proposés par les actuaires, et quel ouvrage sera de la plus grande valeur aux étudiants qui se préparent au service des instituts d'assurance? La question de ce qui peut servir aux spécialistes pourrait bien précéder la question de ce qu'il les faut étudier. Mais il semble que « les affaires » sont si larges à présent, si diverses, et si graves pour le monde de commerce, qu'il n'y a pas de doute à la nécessité pour les grandes Universités et les Écoles administratives, de pouvoir au besoin de quelque sorte d'instruction et d'examiner le mode d'instruction pour ses résultats, — de même qu'il s'est fait historiquement dans toutes les formes d'instruction scientifiques. — « Les affaires » se changent à l'égard des formes et de peu de principes, mais elles ne se changent point à l'égard de leur nature fondamentale et essentielle.

La somme moyenne d'éducation et de jugement demandée par l'assurance est plus grande aujourd'hui qu'autrefois; et de même l'assurance a besoin des esprits plus dressés et habiles. Les compagnies

mêmes dressent des hommes pour les places supérieures, — mais voici le danger de la direction porté sur un seul point ou deux, et des influences locales, — quoique les principes corrects du service civil soient observés. Ce n'est pas le cas aux Universités, dont le point de vue est impartiel et universel, et qui regardent toutes les formes de la force économique et organisée (l'assurance inclue) comme des formes au service de l'humanité, qu'il faut étudier conséquemment.

Elles seront en concurrence à l'égard des places actuarielles avec des concurrents individuels, qui est montré évidemment par beaucoup d'actuaires consultants très distingués. Voilà un example extraordinaire et digne de rémarque: Le bureau de Monsieur D. P. Fackler à New York a rendu avec visible succès complète instruction des « sujets actuarielles » et leur application depuis vingt-cinq années tout au moins à bien des hommes. Cet homme de science très habile et distingué a enfin achevé de former une école d'actuaires dans laquelle on peut élire et dresser les hommes dont l'inclination et l'habilité s'accordent avec l'ouvrage spécial, et auxquels l'éducation pratique a donné le droit d'exiger l'emploi.

Tout compris je crois que la demande d'ouvrage purement actuariel est limitée à présent, quoique « les affaires » aient de plus en plus besoin des services des actuaires. De ce point de vue personne ne peut expecter que ces sujets seront traités largement et généralement dans les cours spéciaux par les grandes Universités du pays.

De l'autre côté le terrain est vaste et il y a bien des places dans les agences et les bureaux des compagnies, et ces places seraient occupées, — en pareille circonstance, — par les hommes dressés qui ont ajouté à leur connaissance des lettres humaines de telles particulières, acquises dans de spéciaux et bien arrangés cours d'assurance. C'est à dire, un tel cours populaire vaut mieux qu'un cours technique, — un cours populaire qui s'étend sur et épuise « les affaires » et leur pratique, avec un peu d'attention à la science technique, et suivi par des cours de lecture, d'écriture et d'examination aux étudiants qui souhaitent d'aller loin dans leur science spéciale. Une telle occasion devrait être offerte dans les écoles supérieures.

Tout au moins il est impossible que la plupart des sciences soient enseignées pratiquement dans l'école, par exemple Jurisprudence, Théologie, Génie, le Service dans l'armée et dans la marine, les affaires du banquier, du spéditeur, etc. « Les affaires » exigent des services experts pour ces branches, mais il est impossible d'enseigner les détails des services hors de ces branches. On peut donner une forme scientifique à l'expérience d'assurance, ce qui est prouvé par les cours de la Michigan Université. Il faut reconnaître la limite de l'instruction et faire l'étudiant reconnaître la limite aussi bien que la possibilité de prendre cette expérience pour « la base de l'instruction de la pratique des affaires.» Il a été déjà montré que « les affaires » demandent des hommes bien dressés de bonnes matières et de profonde éducation, — par le nombre de tels hommes existants; car le Collèges les a fournis avant qu'on en a eu besoin. Il y a des hommes qui acquièrent la dressure du Collège hors du Collège. La dressure est nécessaire et doit venir de quelque lieu; et it faut que les Universités prennent part à cette dressure. Il n'y a pas de raison de ne pas baser des ouvrages seulement pratiques et non-académiques, mais très importants à tout le monde, sur éducation spécifique, et de ne concéder à l'assurance aucune place dans les cours de nos instituts pour l'instruction technique. Dans le schème de la sociologie moderne il les faut former des caractères et des hommes pour la

vie; « les affaires » inclues. Prendre sa chance, c'est qu'il faut à l'étudiant d'assurance, — et à tout le monde! Peut-être il ne peut jamais toucher l'assurance; il y a des milliers d'hommes dressés spécialement qui en fin débarquent sur un autre champ. Toute classe des Collèges le prouve. L'importance de l'ouvrage actuariel pour l'assurance intéresse les Universités et les Écoles Supérieures.

C'est pourquoi les affaires d'assurance sont d'importance universelle qu'elles méritent l'attention de nos Universités; il les faut prêter d'attention moderne, pratique et experte à toutes les affaires courantes, au calcul des quote-parts, à la construction des polices et leur vente, à la conduite et la surveillance des affaires, et il les faut travailler, en augmentant l'administration économique de tous les départements d'assurance, — au profit du bonheur des humains.

De plus cette attention des Universités rendra les affaires d'assurance plus étendues et sera au service de tous les contemporains, ce qui est le but de toute éducation.

Enfin, comme les Etats-Unis n'ont pas marché en arrière du développement, du progrès et de l'étendue des affaires diverses d'assurance, — comme ils ont stimulé considérablement son idée, son action et ses résultats, — il faut que leurs grandes Universités prêtent attention le plus que possible à son exégèse scientifique et pratique, — ce qu'en effet a été commencé par les meilleures de nos Universités et de nos Écoles.

ÜBER DIE VORLESUNGEN AN UNIVERSITATEN IN GEGENSTÄNDEN, WELCHE SICH AUF DIE BERUFS-THÄTIGKEIT DER AKTUARE BEZIEHEN.

Von J. A. de Boer.

Der Bericht basiert ouf einigen 70 Antworten auf über 100 Briefe, welche an die Präsidenten bestimmter Universitäten und Colleges in den Vereinigten Staaten gerichtet waren. Diese Briefe ersuchten um genaue Auskunft über den Stand der aktuariellen Lehrgegenstände und erbaten Kataloge, in welchen diese Themata besonders ausgezeichnet waren, veröffentlichte Dokumente und andere Papiere, und schliesslich die Namen der vortragenden Lehrer, sowie die Gegenstände und Daten der Vorträge. Ein Unterschied zwischen Universitäten und Colleges wurde nicht gemacht, ebensowenig wurde der Begriff „aktuarielle Lehrgegenstände" genau definiert. Der Bericht enthält alle auf diese Weise gesammelten Auskünfte, welche hier kurzgefasst wiedergegeben werden.

Die meisten Anstalten berühren aktuarielle Wissenschaften nur im Zusammenhang mit anderen regelmässigen Unterrichtsgegenständen, wie z. B. Sociologie, Statistik, Nationalökonomie, Biometrie, Medizin, Jurisprudenz und höhere Mathematik. Ein regelrechter Kursus in Versicherungswissenschaften findet also nicht statt. Der Bericht zählt 45 solcher Anstalten auf, mit einer Schülerzahl von über 37,000 im Jahre 1902.

Andere Anstalten wieder weisen auf speziellen Unterricht in aktuariellen Fächern hin, worunter sie meistens das Versicherungswesen in seinen verschiedenen Formen verstehen. Es sind etwa 17 solcher Anstalten, die der Bericht erwähnt,—vor allem die Universität von Chicago, welche regelmässige Vorlesungen in aktuariellen Fächern oder über allgemeine Versicherungskunde plant. In keinem Falle erfahren wir jedoch etwas über die Zeit, welche auf solchen Unterricht verwendet wird, noch über die Zahl der an solchen Kursen teilnehmenden Studenten. Diese Tatsachen werden hauptsächlich erwähnt, um zu zeigen, welche Fortschritte in dem Bestreben gemacht worden sind, die Aufmerksamkeit der Unterrichtsanstalten sowohl als des Publikums im allgemeinen auf das Versicherungswesen, und zwar zunächst auf die Lebensversicherung und dann auf die Feuerversicherung zu lenken.

Der dritte Teil des Berichtes handelt von solchen Anstalten, in denen mehr als die durschnittliche Aufmerksamkeit auf die erwähnten Fächer verwendet wird. In einigen derselben wird umfassender Unterricht in aktuariellen Fächern erteilt. Dieser Teil enthält daher einen Hinweis auf so ziemlich alle diesbezüglichen Leistungen der Universitäten und Colleges der Vereinigten Staaten bis zum heutigen Tage.

Die Wisconsin Universität hat einen ausgezeichneten Kursus in den Versicherungswissenschaften, welchen Herr Professor H. B. Meyer leitet. Der Kursus legt sowhol die ökonomische Seite als auch die Notwendigkeit der Versicherung dar. Für 1903/04 ist ausserdem ein Kursus in Versicherungsmethoden geplant.

Auf der Yale Universität haben die Lehrer für Mathematik, Nationalökonomie und Statistik Vorlesungen über Lebensversicherung ge-

halten. Für die nächste Zukunft plant man daselbst systematischen Unterricht, — sowohl theoretisch wie praktisch, — durch Autoritäten wie Bissel, Gore, Holcombe und Lunger. Der Kursus umfasst wöchentlich eine Vorlesung und eine Repetition, welch' letztere gewissermassen die Prüfung der Studenten bezüglich der vorhergegangenen Vorlesung darstellt; daran schliesst sich eine Darstellung der einschlägigen Literatur.

Die Harvard Universität schlägt die Versicherungswissenschaften zu den Staatswissenschaften. Im Jahre 1899 hielt Charlton T. Lewis daselbst fünfzehn Vorlesungen über die „Grundlagen der Versicherung." Herr Professor Eugen Wambaugh hat ebenfalls Vorlesungen über Versicherung angezeigt, in denen er die geschäftliche Seite nach allen Richtungen hin betonen und zugleich die mathematische Berechnung der Raten, sowie einen Ueberblick über die neuesten statistischen Erhebungen auf dem Gebiet des Versicherungswesens berühren will. Dieser Kursus wird während des laufenden Jahres nicht stattfinden, im Jahre 1904 dagegen wieder eingeführt werden; auch der Kursus über Statistik soll dergestalt erweitert und verbessert werden, dass mehr Zeit auf Theorie und Technik der Statistik verwendet wird.

Die Illinois Universität berichtet über einen Kursus für Versicherungswissenschaft „einschliesslich der Aktuarien," welchen Herr Professor H. M. Robinson leitet. Differentialrechnung ist als Vorstudium für den Kursus in Statistik vorgeschrieben. Derselbe umfasst weiter Versicherungs-Statistik, Buchung und Versicherungs-Wirtschaft, mit besonderer Berücksichtigung der Theorie und Praxis betreffs der Raten, Policen, Kapitalsanlage, Verwaltung, Buchung, Staatsaufsicht und Versicherungsgesetzgebung.

An der Universität von Californien wird seit sechs Jahren Unterricht in aktuariellen Fächern erteilt, welcher die Theorie der Wahrscheinlichkeitsrechnung, Sterblichkeitstabellen, Raten- und Reserve-Berechnungen, sowie einen allgemeinen statistischen Kursus umfasst, welcher sich im ganzen auf sechs Wochen erstreckt. Vor vier Jahren wurde ein Kursus in der Wahrscheinlichkeitsrechnung gehalten, — mit spezieller Beziehung auf Lebensversicherung, — welcher während eines halben Jahres zwei Vorlesungen per Woche umfasste. Während des Universitätsjahres 1903/04 werden zwei Kurse abgehalten werden, nämlich einmal über Wahrscheinlichkeitsrechnung, mit einer Stunde wöchentlich während eines Semesters, und dann über Aktuarialrechnung, drei Stunden wöchentlich während eines Semesters. Ferner wird beabsichtigt, diese Kurse durch „praktische oder Laboratorienarbeiten" zu erweitern, über welche sich jedoch der Bericht des Näheren nicht auslässt. Im ganzen werden an genannter Anstalt etwa 90 Stunden auf Kurse verwendet, „welche sich speziell auf diesen Gegenstand richten."

Dartmouth bietet Gelegenheit für das Studium der Anfangsgründe der Versicherungswissenschaft, theoretisch und praktisch, aber im Rahmen anderer Lehrgegenstände. Eine weitere und umfassendere Gelegenheit für dieses Studium bietet die Amos Tuck School for Administration and Finance, welche im Jahre 1900 auf solider finanzieller Basis eröffnet wurde und den Zweck verfolgt, College-Abiturienten, welche sich den kaufmännischen Berufen, im Gegensatz zu den sog. gelehrten Berufen, widmen wollen, eine besondere Ausbildung zu gewähren. Die Schule nimmt nur „Baccalaurei" auf; doch werden auch junge Leute zugelassen, welche drei Jahre lang ein College besucht haben, — aber ohne Abiturium, — welche nach einem Jahre ein Examen über ihre Befähigung nachholen müssen. Die Schule soll durchaus nicht die praktische

Lehrzeit ersetzen, sondern sie will, — von dem Grundsatz ausgehend, dass das moderne Geschäftswesen dieselbe Vorbildung verlangt wie die sogenannten gelehrten Berufe, — kaufmännische Fächer in wissenschaftlicher Weise lehren. Unter den achtzehn Unterrichtsgegenständen ist Versicherung mit einbegriffen, und man ist bestrebt, dem Gegenstand theoretisch und praktisch gerecht zu werden; grosse Aufmerksamkeit wird auf Mathematik, Wirtschaftslehre und Buchung verwendet. Näheres über die Lehrtätigkeit dieser Schule im Hauptbericht.

Die Michigan Universität hat im grossen und ganzen die am besten arrangierten Kurse in Versicherungs-Wissenschaft, welche vornehmlich unter der bewährten Leitung des ausserordentlichen Professors Herrn James W. Glover stehen. Die beste Uebersicht über diese vorzüglichen Kurse über Versicherungsstatistik, einschliesslich der Renten- und Versicherungsberechnung, sowie der Theorie der Renten und Versicherung, erhält man aus dem Hauptbericht; es ist unmöglich, diesen Kursen hier Gerechtigkeit wiederfahren zu lassen, jedoch eine Stelle in dem veröffentlichten Programm der Schule bezeichnet den Zweck und die Ziele dieser Kurse so prägnant, dass sie hier wörtlich angeführt werden möge:

> Die Kurse in Statistik und Versicherungswesen sollen in ziemlich erschöpfender Weise den Bedürfnissen praktischer Aktuarien und Statistiker genügen. Graphische und analytische Prozesse sollen entwickelt und durch Analysen illustriert werden, welche den täglichen Fachzeitschriften entnommen sind. Unser Ziel ist, dem Schüler praktisch verwertbare Kenntnisse der Grundprinzipien beizubringen und ihn zu befähigen, dieselben auf neue Probleme anzuwenden. Ferner soll die Lehre vom Zinseszins, Jahrgeldern, sowie deren praktische Anwendung bei den modernen grossen Finanzoperationen vorgeführt werden. Unter letzteren sei nur die Amortisation von Schulden durch Jahresrenten erwähnt, wie sie von Staaten und Korporationen geübt wird, die Konvertierung von Pfandbriefen, der Art, wie öffentliche Kreditanstalten die Emission von munizipalen und anderen Schuldbriefen übernehmen, die Berechnung der Anlageraten bei Pfandbriefen u. s. w. Bei allen derartigen Sachen wird die Lehrstunde durch praktische Uebungen interessant gemacht, wie solche den massgebenden Finanzjournalen entnommen werden.

Dieser Auszug und ein Einblick in die Ausführungen des Hauptberichtes werden genügen zu der Erkenntnis, dass die Michigan Universität einen weit umfassenderen Lehrplan für die Versicherungswissenschaften aufgestellt hat als irgend eine andere Universität oder ein anderes College in den Vereinigten Staaten.

Der Bericht schliesst mit einigen Bemerkungen, die sich hauptsächlich auf den Umstand beziehen, dass, — obgleich den eigentlichen versicherungswissenschaftlichen Gegenständen theoretisch und praktisch bis jetzt nur wenig Beachtung seitens der Hochschulen geschenkt worden ist, sich das jetzt zu ändern beginnt, und dass das Versicherungswesen, speziell in seinen Beziehungen zum täglichen Leben, eine stets wachsende Beachtung erfährt. Das ist zum Teil der Entwickelung der höheren Fortbildungsschulen zu danken und anderer ähnlicher Institute, welche sich mit Verwaltungssachen, Finanzwesen und höherer kaufmännischer Ausbildung beschäftigen; zum Teil den gewaltigen Anteil, den „das Geschäft" in der Neuen Welt an aller wirtschaftlichen Entwickelung genommen hat. Vielleicht ist es eine Art Rückwirkung, die dadurch entstanden ist, dass die Versicherungsgesellschaften unter sich Verbände organisiert haben und Leute für ihr Feld heranzubilden sich

bestreben. Ausserdem sind die Bemühungen der Fachgelehrten nicht ohne Erfolg geblieben, dem Publikum die einschlägige Litteratur in wissenschaftlicher und doch populärer Form vorzuführen. In diesem Sinne haben sowohl einheimische wie fremde Gesellschaften gewirkt.

Im Jahre 1898 hielt Charlton T. Lewis fünfzehn Vorlesungen über „Die Grundlagen des Versicherungswesens" an der Cornell Universität, und im folgenden Jahre weitere fünfzehn über „Lebensversicherung" an der Harvard und an der Columbia Universität. Wie er selbst sagt, sind diese Vorlesungen sehr gedrängt und kurz; dennoch tragen sie den Stempel seiner eigenartigen Begabung und Autorität und bedeuten einen erfolgreichen Versuch, die sämmtlichen logischen und statistischen Grundlagen des Versicherungswesens vorzuführen. Diese Vorlesungen haben anscheinend den ersten Anstoss dazu gegeben, dass die Versicherungswissenschaften in das Programm der Universitäten aufgenommen worden sind und haben entschieden fördernd auf die Beachtung derselben seitens der Bildungsanstalten eingewirkt.

Herr Professor Glover von der Michigan Universität hat angefragt, welchen Kursus in den aktuariellen Fächern die Versicherungsbeamten am liebsten sehen würden, resp. welche Form des Unterrichtes sowohl den Lernenden als den Versicherungsgesellschaften am meisten von Nutzen sein dürfte. Sicherlich sollte die Frage nach dem Nutzen für Fachmänner der nach dem Gegenstand des Unterrichts vorhergehen. Allein die Versicherungsgeschäfte haben heutzutage eine solche Ausdehnung und eine solche Bedeutung in der kaufmännischen Welt gewonnen, dass unsere grossen Universitäten und Hochschulen ohne Frage früher oder später auf die eine oder andere Weise diesen Unterricht in ihr Programm aufnehmen müssen und ihre diesbezüglichen Erfahrungen genau so zu verwerten haben, wie sie es bei der Etablierung und weiteren Ausbildung des Unterrichtes in den gelehrten Fächern haben tun müssen. Das Geschäft ändert seine Formen und bisweilen seine Ziele, aber nicht seine wesentlichen, fundamentalen Grundprinzipien. Das Versicherungsgeschäft bedarf heute Männer von durchschnittlich höherer Bildung und Urteilskraft und verlangt Arbeitskräfte von besserer Schulung und höheren Geistesgaben. Die Versicherungsgesellschaften erziehen sich ihre Leute für die höheren Stellungen, doch wird eine derartige Bildung leicht einseitig und unterliegt dem Einfluss gewisser Vorurteile, selbst wenn sie auf gesunden erzieherischen Grundsätzen beruht. Die Universitäten hingegen nehmen einen ganz anderen Standpunkt ein, neigen nach keiner besonderen Richtung, und sehen naturgemäss in jedem wirtschaftlichen Organismus, — einschliesslich dem des Versicherungszweiges, — einen Nutzen für das Gesammtwohl und ein Objekt für das wissenschaftliche Studium.

Bezüglich der Besetzung von Stellungen in der Versicherungsbranche unterliegen sie einer Konkurrenz des Privatunterrichtes, wie er jetzt schon von einer ganzen Reihe von Fachmännern im Versicherungswesen erteilt wird. Das Institut von D. P. Fackler in New York hat seit mindestens 25 Jahren sich mit augenscheinlichem Erfolg dem Unterricht junger Leute in den Versicherungsfächern und ihrer Anleitung für die Praxis gewidmet. Dieser ausgezeichnete und fähige Gelehrte hat in der Tat eine Schule für Versicherungsbeamte geschaffen, welche sowohl Leute für das spezielle Fach, für welches sie besondere Neigung oder Begabung zeigten, vorbildet, als auch den Versicherungsgesellschaften ausgezeichnetes Beamtenmaterial zur Verfügung stellt. Seiner praktischen Anleitung verdanken es seine Schüler, dass sie sich

ihre Posten auswählen können, und ein Recht auf solche Anstellung geltend machen können.

Im ganzen sind jedoch derartige Gelegenheiten für Ausbildung in allgemeinen, versicherungstechnischen Fächern noch sehr selten, während andererseits nicht zu leugnen ist, dass in mehr als einer Richtung die Dienste geschulter Kräfte im Geschäftsleben mehr und mehr gefordert werden dürften.

Von diesem Standpunkt aus kann man kaum erwarten, dass die erschöpfende Behandlung dieses Gegenstandes noch von anderer Seite als durch unsere besten Universitäten in die Hand genommen werden wird.

Andererseits ist stets genügend Platz vorhanden, bei Agenturen sowohl als in den höheren Beamtenstellen unserer Versicherungsgesellschaften, für geschulte Kräfte, und diese Plätze werden voraussichtlich nur mit durchgebildeten Persönlichkeiten besetzt werden, welche ihre allgemeine wissenschaftliche Bildung durch wohlgepflegtes Spezialstudium erhöht und wertvoller gemacht haben. Dabei ist zu beachten, dass solche Unterrichtskurse mehr populär als streng fachwissenschaftlich eingerichtet werden sollten, auf breiter Grundlage des Geschäftes und der Praxis, unter Berücksichtigung der technischen Seite und verbunden mit Litteratur, wissenschaftlichen Aufsätzen und Repetitionskursen für solche Schüler, welche ihre fachwissenschaftliche Ausbildung in mehr als gewöhnlicher Weise zu vervollkommnen bestrebt sind. Hierzu sollten unsere höheren kommerziellen Schulen die Gelegenheit bieten.

Die meisten Fächer können überdies kaum praktisch vorgeführt werden, z. B. Jurisprudenz, Theologie, Ingenieurwissenschaft, Heeresdienst zu Wasser und zu Lande, das Bankgeschäft, die Spedition, etc. Das Leben verlangt heutzutage in all diesen Fächern wissenschaftlich vorgebildete Männer, aber praktische Uebung kann eben nur in der Praxis erworben werden. Die Grundprinzipien des Versicherungswesens können in wissenschaftliche Form gefasst und so vorgeführt werden, wie die Lehrpläne der Michigan Universität beweisen. Aber man sollte die Grenzen dieser Lehrpläne nicht aus den Augen verlieren, den Schüler mit denselben bekannt machen, zugleich ihm aber auch die Tatsache zum Bewusstsein bringen, dass der Unterricht nach diesen Lehrplänen für ihn eine solide Basis für die Praxis bildet. Dass man in der Praxis wohlerzogene, gründlich gebildete Leute, welche auf breiter wissenschaftlicher Grundlage erzogen worden sind, immer gebraucht, ist allein schon durch die Tatsache des Vorhandenseins solchen Materials in nicht geringer Anzahl bewiesen; denn der akademische Unterricht hat eine grosse Zahl Männer gezeitigt, welche Beschäftigung in der Versicherungsbranche suchen, ehe man nach ihnen Umschau hält. Nur wenige geniessen eine akademische Bildung, und viele von ihnen privatim. Aber die wissenschaftliche Ausbildung ist eine Notwendigkeit und die Universitäten sollten das berücksichtigen. Warum soll ein praktischer und an sich nicht akademischer Beruf, der für die ganze Menschheit von der grössten Bedeutung ist, nicht auf spezieller Fachbildung auf wissenschaftlicher Grundlage beruhen; und warum soll das Versicherungswesen, einer der wichtigsten Faktoren im modernen Geschäftsleben, nicht unter den Lehrgegenständen unserer Anstalten einen Platz finden, welche als ihr Ziel den Unterricht in technischen Fächern bezeichnen? Ihre Aufgabe im modernen Leben ist, Charaktere zu bilden und junge Männer für alle Berufe vorzubilden, mit Einschluss des Geschäfts. Der Schüler muss seine Chancen nehmen wie jeder andere; er mag sich schliesslich dem Versicherungsfach gar nicht zuwenden. Tausende er-

greifen schliesslich einen anderen Beruf als denjenigen, auf welchen ihre Vorbildung sie hinwies; jedes College beweist dies an seinen Alumnen. Aber die Wichtigkeit der technischen Fächer für das Versicherungswesen muss die Aufmerksamkeit von Universitäten und Hochschulen auf dieselben lenken. Man sollte sie in modernem, praktischem, wissenschaftlichem Geist behandeln und keine Branche ausser Acht lassen, zumal die Berechnung der Raten, die Aufstellung von Policen und ihren Vertrieb, Verwaltung und Beaufsichtigung des ganzen Geschäftsganges und die tunlichst vorteilhafte Gestaltung jedes einzelnen Zweiges der Versicherung. Das ist von unendlichem Vorteil für die ganze Bevölkerung, denn alle Kreise der Menschheit kommen heutzutage mit ihnen auf die eine oder andere Weise in Kontakt, — und deshalb bedarf all dies der eifrigsten Fürsorge unserer Universitäten.

Die Vereinigten Staaten sind immer mit an der Spitze marschiert betreffs der Ausbildung, Entwickelung und des Umfanges der verschiedenen Zweige der Versicherung, sie haben die Ideen, die Tätigkeit und die Ergebnisse der Versicherung in immer weitere Kreise getragen, deshalb haben ihre grossen Universitäten das Recht und die Pflicht, der wissenschaftlichen und praktischen Exegese derselben ihre Aufmerksamkeit zu schenken so viel sie vermögen, — und damit ist ja auch an unseren besten Universitäten und Colleges ein vielversprechender Anfang gemacht worden.

THE PROTECTION OF LIFE POLICIES AGAINST THE CLAIMS OF CREDITORS.

BY

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John Stuart Mill, in a striking passage of his "Political Economy," says: "Even what a person has produced by his individual toil unaided by any one, he cannot keep unless by the permission of society. . . . The distribution of wealth, therefore, depends on the laws and customs of society. The rules by which it is determined are what the opinions and feelings of the ruling portion of the community make them, and are very different in different ages and countries; and might be still more different if mankind so chose." His dictum in regard to the distribution of wealth in general may be applied to the proceeds of the modern life insurance policy. This is a form of wealth created by coöperative thrift which the State in the exercise of its plenary powers has sought to encourage and protect by legislative enactments in various countries in diverse modes and in different degrees.

The first direct legislative action for the encouragement of life insurances proper was taken by William Pitt in 1799, when, in connection with the inceptive imposition of an income tax by the British House of Commons, he expressed an intention (to which due effect was given) of exempting from income tax a portion of the income of those who had "recourse to that easy, certain, and advantageous mode of providing for their families by insuring their lives." In the United Kingdom to-day, the income of any person up to the extent of one-sixth thereof is exempt from income tax if applied as payment of premiums on life insurance policies; this is a noteworthy incident of British legislation and one since copied to some extent by many of the British dependencies. In New South Wales, for instance, life insurance premiums up to £50 per annum are allowed to be deducted from taxable incomes, and, assuming an average premium of 3½ per cent., in virtue of this provision a life policy for over £1,400 is represented by the exempted amount.

In 1773 a bill was brought before the House of Commons which has been regarded as "the first instance in which the legislature had its attention called to the wisdom of efficiently protecting and encouraging institutions established for the promotion of thrift and frugality." This bill had the sanction of, among others, Edmund Burke, Benjamin Franklin, and Lord Chancellor Loughborough, and was entitled "An Act for the better support of poor persons in certain circumstances, by enabling parishes to grant them annuities for life upon purchase and under certain restrictions," and the tables appended to the bill were calculated according to the Northampton mortality by Dr. Price. The bill passed the Commons but was rejected by the Lords.

Life assurance proper was not even contemplated until the Equitable Society was formed in 1762, and twenty years later it introduced the reduced premium rates prepared by Dr. Price, who has already been mentioned. As regards America, Dr. I. C. Pierson says: "The first defi-

nite action was taken when, in 1759, a life insurance company now called the 'Presbyterian Ministers' Fund,' was incorporated by the proprietaries of the Province of Pennsylvania to insure annuities for the benefit of the widows and orphans of the clergymen of all churches governed by elders." To-day, after the lapse of some one hundred and fifty years, during which life insurance has progressed by leaps and bounds, the pendulum seems to be swinging back again toward the annuity system; ordinary whole-life policies are being partially displaced by term insurances and by investment policies covering options providing annual incomes instead of a lump sum at death of the assured or maturity of his policy.

It must have been early recognized in the history of life insurance that the provision created by its means might be altogether lost by financial misfortune overtaking the assured.

Dr. Johnson once said that the advantage of primogeniture was that "it makes but one fool in a family," but that self-same institution of feudal times necessitated other settlements of property, and the modern doctrine of protection of life policies is but a natural development arising out of this system of family provision by settlements. It was definitely urged by Mr. Russell Gurney during the second reading debate in 1870 over the first English Married Women's Property Act that "it was intended to effect settlements for the poor and wage-earning classes." This equally applies to all legislative enactments for the protection of life policies from the claims of creditors. The present President of the Institute of Actuaries (Mr. William Hughes) in a paper read before the institute in December, 1887 (vol. xxvii.) stated: "It is not very apparent why a life policy effected by a man for the benefit of his family should be made the subject of special privileges more than any other investment made for the same good purpose, or why such a provision should find a place in an act for the protection of married women's savings and earnings." What was not very apparent then we venture to think is more clearly apprehended to-day. The Married Women's Property Acts passed in 1870, 1874, and 1882 had their origin obviously in a widespread recognition of the legal disabilities which married women, destitute of civil rights, suffered owing to their earnings and savings—and any life policy also—being at the mercy of idle or dissolute husbands. The interests of wife and children, Bacon's "Hostages to Fortune," should be held at least equally as sacred as the interests of creditors; and to protect from the grip of the bankruptcy laws, a family provision by means of a life policy secured in time of financial ease and security is surely a worthy social aim, harmonizing with the feelings of the ruling section of the community. Bearing in mind the increasing cost of living and higher standard of education nowadays, we are conscious that there are large numbers of our population to whom it is impossible to make provision for their families and for their own old age except by means of life insurance. This social fact speaks volumes for the wisdom of the steps taken by various legislatures, whether in Great Britain or Canada, in the United States or in Australia, for the protection of the life policy provision. An Australian judge has well stated with legal force (Mr. Justice Manning, in re Adams, New South Wales): "There is no dishonor in doing a thing which the legislature has declared legal and considered highly beneficial for the States, i.e., that a man should put by money for the express purpose of providing a fund for himself in his old age or for those for whom it is his duty to provide secure from the claims of creditors of any description."

Mr. Richard Teece, in a paper dealing fully with this subject of

protection of life policies, read before the Insurance Institute of New South Wales on March 13, 1889, after an exhaustive survey of the legislation then in force in the various colonies of Australasia, expressed his opinion that "It will, I think, be generally admitted that within reasonable limits the principle of this protection is worthy of support." One distinctive feature of life insurance is that the benefit to be derived is contemplated usually as an impersonal one, and the efficacy of the policy is measured by its results in the case of premature death. If death occur very early in the history of the policy, as in some cases it must, then the return which the assured's estate reaps is one which no other form of provision or investment can at all approach. In the words of Mr. Jacob L. Greene, life insurance "alone among human schemes can provide at once, in case of death, the fund which could have been accumulated only in a long lifetime, which might never have been otherwise accumulated at all, which at best could have grown but slowly, and might have been stopped at any time. This is the one thing life insurance can do; this is the one thing which no other device of man can do." It can scarcely be held justifiable that creditors should have an equal right with the assured's family to an "unearned increment" arising by reason of the death of the assured, for the benefit of whose family, rather than of creditors, it may be supposed that the policy was taken out. If it be conceded, therefore, in view of what has been said, that the protection of life policies is a reasonable subject for State legislation, what is the germ from which such legislation has sprung? Mr. C. D. Higham, in the course of a discussion at the Institute of Actuaries, already referred to (vol. xxvii.), remarked that "it would be interesting to learn whether it was not in the United States that the idea of protecting policies first originated, but as far as his personal knowledge went, the first act was the Life Assurance Encouragement Act of 1862 in New South Wales." The initial step was, however, taken in 1840 in the United States, and in a different way in Australia in 1850, whilst in 1865 was passed the first law in Canada, protecting policies for the benefit of families.

United States.

Mr. W. G. Davies, in a lecture in New York, delivered in 1891, referred to the local act "in respect to insurance on lives for the benefit of married women passed April 1, 1840, and the several acts amendatory thereof. This statute provides in effect that a husband may insure his life for the benefit of his wife or his children, and that no matter what his financial condition may be, he may pay a premium not exceeding $500 per year and the insurance so obtained shall be exempt from any claims of his creditors. These policies are usually made payable to the wife, if living at the death of the insured, and in case of her previous decease, to her children or their guardian." This New York statute of 1840 may be considered the "*fons et origo*" of all subsequent legislation on the subject. It is entitled "An Act in respect to insurances for lives for the benefit of married women, passed April 1, 1840." The first section of the act, in the terms given by Wolford in 1870, covering amendments to that date, provided that "It shall be lawful for any married woman by herself and in her name, or in the name of any third person with his assent as her trustee to cause to be insured for her sole use the life of her husband for any definite period or for the term of his natural life; and in case of her surviving such period or term, the sum or net amount of the insurance becoming due and payable by the terms of the

insurance shall be payable to her to and for her own use, free from the claims of the representatives of the husband or any of his creditors; but such exemption shall not apply where the amount of premium annually paid out of the funds or property of the husband shall exceed $300" (later $500).* The distinctive features of the act were that it enabled the husband to make a stable provision for his family (without the inevitable intervention of a trustee) protected against his creditors both at the time of effecting the policy and afterwards, and the premiums could be paid out of his estate up to a limit of $300; and since the right of the wife to the policy moneys was contingent on her surviving her husband there was no fund which any creditors of her own could seize upon. It will be seen, therefore, that a very substantial measure of protection from creditors was provided by this act. Further amendments of the act in 1873 and 1879 do not affect the special features to which attention is here directed. It may be remarked that assuming an average annual premium of 3½ per cent., the limit of £100 would suffice to purchase a life policy for almost £3,000.

The authority already referred to says that under the act the policy is usually made out payable to the wife if she survive the assured. From the specimen policy forms published in the "Handy Guide," it would appear that since, at least, 1896, many contracts contain a clause to the following effect:

"Change of Beneficiary. The insured may at any time during the continuance of this insurance bond, provided the bond is not then assigned, change the beneficiary or beneficiaries by written notice to the company, at its home office, accompanied by this bond; such a change to take effect on the indorsement of the same on the bond by the company. After indorsement the bond will be returned."

The policy also provides for cash loans to the insured on demand after two years. The precise effect of the power retained by the life assured has created considerable discussion in America (v. Transactions of the Actuarial Society of America, May, 1901-October, 1902). In this connection it may serve to quote the words of Bunyon, the English authority, where he says (p. 462): "A power of revocation may always be reserved by a settlor; but to render the provision entirely secure in the event of a subsequent bankruptcy it must be omitted. Such a power exercisable by the settlor at his pleasure is equivalent to the entire interest, and may be exercised by the trustee in bankruptcy for the benefit of creditors."

It will be observed that in the event of a change of beneficiary or of a loan being taken, the company does not require the consent of the beneficiary first named in the policy; the assurance is therefore practically in the sole control of the assured, who by taking a loan and not paying the interest accruing may effectually exhaust the surrender value and cause a lapse of the policy—although having apparently no specific power to surrender the policy right out. In regard to these policies, and the possible effect of bankruptcy, it will be noted that the bankruptcy law of 1898 in the United States by Section 70 provides (inter alia) that: "When any bankrupt shall have any insurance policy which has a cash surrender value payable to himself, his estate, or personal representatives, he may within thirty days after the cash surrender value has been

* By an amendment passed April 18, 1870, the amount of premium which might be paid in any year out of the husband's estate was increased to $500, but any amount paid in excess, with the interest thereon, should inure to the benefit of his creditors.

ascertained and stated to the trustee by the company issuing the same, pay or secure to the trustee the sum so ascertained and stated, and continue to hold, own, and carry such policy free from the claims of the creditors participating in the distribution of his estate under the bankruptcy proceedings, otherwise the policy shall pass to the trustee as assets." . . . When the legal points connected with the power to change the beneficiary come before the highest courts the legal decision will doubtless furnish some definite settlement of the matter.

It may be pointed out that in the statutes of Illinois (March, 1869, sec. 19) the premiums paid on any policy effected by a married woman for her own use on the life of her husband with intent to defraud creditors—may be claimed, with interest, for the benefit of creditors, subject, however, to the Statute of Limitations. This reference to the Statute of Limitations is a distinctive feature.

Canada.

Coming now to the legislation in Canada, the Ontario statute of 1865 is claimed to be the most comprehensive and best working "Wives and Children Act" passed by any legislature. The salient features of the act, which has been variously amended from time to time, are set forth in a paper entitled "Life Assurance in Canada," read January 11, 1894, by Mr. F. Sanderson (vol. iii., Transactions of Actuarial Society of Edinburgh). The following provision now contained in the law of the Province of Ontario may be quoted: "Where a policy is taken out for the benefit of the husband, wife, children, grandchildren, or mother of the assured, then such contract shall create a trust in favor of the said beneficiary or beneficiaries according to the intent so expressed or declared, and so long as any object of the trust remains the money payable under the contract shall not be subject to the control of the assured or of his or her creditors or form part of his or her estate when the sum secured by the contract becomes payable."

It is here contemplated apparently that the policy once effected passes beyond the control of the assured, except that he has vested in him a power to apportion the policy moneys among the "preferred beneficiaries" of the act and no others. The assured who has once nominated a beneficiary cannot thereafter remove the interest of such beneficiary without his or her consent, and similarly any dealings with the policy would be subject to the consent of the beneficiaries for whose behoof the moneys are apportioned, and a trust having been created protection against creditors is thereby secured.

In the Province of Manitoba, by an amending act of July 21, 1899, "To be deemed to have always applied," it is enacted that the insured may absolutely revoke the benefit or re-apportion or substitute new beneficiaries or divert the insurance moneys wholly or in part to himself or his estate, but cannot divert the benefit of any person who is a beneficiary for value." This practically brings such policies in that province into line with those issued by many offices in the United States. It is unnecessary, however, to go more into detail on a subject which has been ably handled by American writers.

Cape Colony.

In Cape Colony the "Life Assurance Act, 1891," was passed on August 7, 1891, by which protection of life policies against creditors is afforded. This protection was subsequently adopted in similar terms in

the late Orange Free State (now Orange River Colony) in 1894. By Section 16 of the act the interest of the assured in the sum assured by any policy or policies on his own life, having endured for over three years, is protected against creditors up to £400 during the fourth year, and an additional £100 is protected for each year thereafter, up to a maximum of £2,000 (irrespective of any bonus additions) in the twentieth year. If, however, the assured chooses to surrender his policy to the office the surrender value will be an asset in his insolvent estate, but if the office grant a paid-up assurance in lieu of the original policy the protection is continued thereto. Where the assured holds a policy not fully protected the office is required to cancel the original policy and issue in lieu substituted policies for the amount protected and for the residue respectively (sec. 20).

If it be proved that a policy has been effected with intent to defraud creditors (sec. 22) the amount of the premiums paid with such fraudulent intent (with interest) constitutes a charge on the policy and such amount shall be payable out of the sum assured when a claim arises under the policy.

A policy effected by a married woman or her own or her husband's life is not subject to the control of her husband, nor after the policy has endured for three years is it liable for his debts (sec. 17). As regards her own creditors the protection accrues to a policy in the ordinary terms of the act.

In a paper read before the Insurance Institute of South Africa by Mr. Charles Gordon, the provisions of the act are referred to at some length (vide "Post Magazine" of September 6, 1902).

New South Wales.

(Census population, 1901, 1,354,846.)

Proceeding now to trace the line along which the doctrine of pro- and to obviate, if possible, the necessity of introducing a poor law into first to the mother State of New South Wales. The primary enactment was passed in New South Wales on September 10, 1850; it read as follows:

"An Act for the encouragement of persons desirous of providing for their support in old age; and for the protection under certain restrictions of their annuities and subscriptions for deferred annuities (assented to September 10, 1850).

"*Whereas,* it is desirable, for the encouragement of provident habits and to obviate, if possible, the necessity of introducing a poor law into this colony, that the savings of all persons specially set apart for their support in old age should be secured to them and protected by law: Be it therefore enacted, by His Excellency the Governor of New South Wales with the advice and consent of the legislative council thereof, that all annuities as hereinafter provided, which shall be in the course of payment to aged persons, as well as all subscriptions for deferred annuities to persons when they become aged, shall not be liable to be seized or levied upon by the process of any court or courts whatever in the Colony of New South Wales.

"II. Provided always, and be it enacted, that such annuity shall not exceed the sum of one hundred and four pounds per annum, or two pounds per week, exclusive of any bonus or profit that may be divided amongst the members of the society; and that such annuity shall not commence before such person shall have attained the fiftieth year of his

or her age, and shall have been purchased by weekly, monthly, quarterly, half yearly, or annual subscriptions, and the payments not made at any time more than two years in advance; and further, when an annuity has already commenced and is in the course of payment, the annuitant, in order to enjoy the protection provided by this act, must have been a subscriber for his deferred annuity at least six years previously to the commencement of such annuity.

"III. And be it enacted, that no society or company, or the members thereof, at present formed, or that may hereafter be formed, shall be entitled to possess the privileges herein contained unless such society or company shall have been duly certified and enrolled in pursuance of the provisions of an act passed in the seventh year of the reign of Her present Majesty, entitled 'An Act to regulate friendly societies in the Colony of New South Wales,' and be subject to all and singular the provisions thereof.

"IV. And be it enacted, that married women shall be entitled to all the privileges of this act as if they were *femmes sole.*

"V. And be it enacted, that this act may be altered or amended by any act to be passed in the present session of the legislative council."

This act was doubtless passed as an extension of the privileges granted to friendly societies by Act 7, Victoria No. 10. It was repealed in 1873 by Act 37, Vict. No. 4.

It is of some interest to notice that married women are entitled to all the privileges of the act as if single.

The next enactment in order of time was "An Act to incorporate the Australian Mutual Provident Society passed on March 18, 1857." This well-known measure, which is also applicable to Queensland, then part of New South Wales, was mainly drawn up by the late Mr. M. Consett Stephen, and has on several occasions received judicial interpretation; but as its main feature—so far as protection of life assurances is concerned—is contained in the general statute of December 20, 1862, entitled "An Act to encourage and protect life insurances and other like provident arrangements for insurers and their families," it will be sufficient to refer to the provisions of the latter measure. This act is now repealed but was reënacted by the "Life, Fire, and Marine Insurance Act, 1902, Part II.," and Sections 4 to 7 contain the special provisions now in force dealing with the protection of assurances and having the same effect as the provisions of the original act:

"(4) The property and interest of every person who has effected, or shall hereafter effect, any policy for an insurance *bona fide* upon the life of himself or any other person in whose life he is interested, or for any future endowment for himself or any other such person, and the property and interest of the personal representatives of himself or such other person in such policy, or in the moneys payable thereunder or in respect thereof, and in the contributions made toward the same, shall be exempt from any law now or hereafter in force relating to insolvency or bankruptcy or from being seized or levied upon by or under the process of any court whatever.

"(5) A policy for life assurance or endowment or the contributions made toward the same shall not be protected under the last preceding section until such policy has endured for at least two years, after which period such protection shall be afforded to the extent of two hundred pounds of insurance or endowment, and after an endurance of five years to the extent of five hundred pounds, and after an endurance of seven

years to the extent of one thousand pounds, and after an endurance of ten years to the extent of two thousand pounds.

"(6) A policy for an annuity or contributions made toward the same, shall not be protected under Section 4 of this act until the payments made on behalf of such annuity have extended over a period of at least six years, or unless such policy has been purchased at a date at least six years prior to the commencement of the annuity, and such annuity does not exceed one hundred and four pounds per annum.

"(7) The protection afforded under Section 4 of this act shall, in the case of an annuity, accrue only to the benefit of the actual annuitant, and only to such part thereof as is payable after such annuitant has attained the age of fifty years, and in the case of an endowment for the benefit only of the nominee, and in the case of a life insurance for the benefit only of the personal representatives of the insured, and in no case for any assignee of the insured."

It should be stated that although New South Wales was the first colony to pass an act dealing with the protection of life policies, yet that State is now the most backward of any of the Australian group in point of general insurance legislation. The English act of 1870 has never been adopted in New South Wales.

It may also be stated that generally speaking the whole of the protective legislation regarding policies which has been enacted in the various States of the Australian Commonwealth and the Colony of New Zealand is more or less based on the provisions of this act, as will be seen hereafter. The divergencies in the various acts are doubtless partly due to the inevitable modifying differences of opinion; whilst not a little of the difficulty which has been experienced in the interpretation of these enactments has arisen from the consistently conservative attitude of the judiciary, who, considering such provisions as modifying the general law have, as a matter of course, usually adopted the strictest interpretation so as to do as little violence as possible to the general rights of creditors in bankrupt estates.

The act under notice contemplates the limited protection of life assurances, endowments, and annuities. It covers the interest of every person in any policy on his or her own life or any life in which an assurable interest exists. It is not held to cover more than £2,000 in all, inclusive of bonuses, whether one or more than one policy exists. The maximum was probably fixed at £2,000 for the reason that this capital sum at 5 per cent. would give an annuity of £100—the protection of annuities up to £104 per annum being already afforded by the primary Act of 1850. The protection of a life insurance is for the benefit of the personal representatives of the assured, i.e., his next of kin. As the assured cannot be his own next of kin the point has been raised as to whether an endowment-assurance policy (as distinct from an endowment simply) is protected, should the assured be bankrupt at the date of its maturity. There has been no legal decision of the point in New South Wales, but it is probably safe to conclude that the proceeds of endowment-assurance policies at maturity are included within the protection afforded by the act. It has also been asked, in case of a life policy where the assured becomes bankrupt and the policy is protected, if a trust is not thereupon created for the benefit of his personal representatives such as would preclude him afterwards from dealing with the policy, but in practice the point is passed over inasmuch as the words of Section 4 of the act protect both the property and interest of the assured *and* of his personal representatives in any policy. The policy remains in the as-

sured's control freed from any liability to be taken in satisfaction of his debts. With regard to endowments, protection is stated to accrue for the benefit of the nominee—usually a minor—although as a rule the purchaser receives the amount of the endowment himself.

With regard to annuities, the act is also not free from difficulty; the provision is based on the earlier Act of 1850 already quoted. Protection is afforded after the expiry of six years from date of purchase of an annuity not exceeding £104—the term when the benefit of the Statute of Limitations accrues in Australia—and also provided the annuitant is fifty years old. As protection accrues only for the benefit of the annuitant himself it would appear doubtful whether the case of a reversionary annuity is sufficiently covered by the wording of the act. The fact should not fail to be recorded that by the Act of 1862, married women, as if single, may effect policies and their policies shall not be subject to the debts or control of their husbands, and may be disposed of by them by will, the protection against the husband's debts up to £200 of assurance accruing after the policy had endured for two years; a maximum assurance of £2,000 being protected after ten years. The provisions of the Married Women's Property Act have since removed any restriction on the amount assured.

It may serve a useful purpose to refer briefly to some of the legal decisions in New South Wales affecting the protection of life policies.

Francis Tait (June,1889). The assured left his estate to his widow absolutely, but the estate passed through the hands of an administrator. It was held that the widow was entitled, as the personal representative of the husband, to the protection of the statute. It was also decided that bonuses will form part of the £2,000 fixed by the act as the maximum sum protected.

Alexander Adams (December, 1894). In this case a lengthy judgment was delivered and several points of considerable importance decided by one of the ablest judges on the Australian bench (the late Justice Manning). It was decided:

(1) That by "personal representatives" are meant the next of kin, i.e., those who would share in case of intestacy.

(2) That the bequest of all the residue of assured's real and personal estate to his wife and children was valid, notwithstanding the use of the words in the will, "I direct payment of all my just debts, funeral, and testamentary expenses," which it was considered were "no absolute words of charge affecting the policies"; and

(3) That "notwithstanding there may be many existing contracts between insurers and companies they must all be read together as 'one contract for insurance' for the purposes of the act subdivided for the convenience of the insurers, but one so far as the protection against creditors is given." There being two policies involved, one for £1,000, which was seven years in force, and another for £500, five years in force, it was held that the amount protected by statute was £1,000, and the assurance in excess thereof was available for payment of the debts of deceased.

Donald Manson (February, 1897). It was held that the protection under the act accrues for the benefit of the wife and family of an assured person and does not extend to a stranger in blood; and, therefore, the disposition of policies by the assured's will in favor of one not of kin did not come within the protection of the act.

Nevile (June, 1898). In this case by the will of the assured his estate was bequeathed to his son, subject to payment of debts, and it

was held that a sufficient direction was expressed, and the policy moneys which would ordinarily have been protected against creditors were liable for the assured's debts.

Thompson (February, 1903). The assured held a policy entitled to protection, but he borrowed on it from the insurance company and made a payment thereout to one of his creditors. It was held that such payment was not an illegal preference as the selected creditor was paid out of a fund to which neither he nor his fellows had any claim whatever. This case is now under review by the courts.

Palmer (April, 1903). The assured held three policies, each of £500, which were, respectively, over fifteen years, over two years, and under two years in force when he died insolvent. As the policy-holder was assured for over fifteen years by the oldest policy, the £500 assured thereby was held protected. As he was assured for £1,000 (in all) for a period only slightly exceeding two years, whereas the act required the insurances to be in force for seven years to be protected up to £1,000 (there being no intermediate period of protection specified), no protection could be claimed for the second policy at all, although it might seem that £200 thereby would be protected since the policy had endured for over two years. Since only £500 was declared to be protected and no mention of the bonuses was made, it would seem to follow that if any existed no protection could be claimed for them.

New Zealand.

(Population, Census 1901, 772,719.)

The earliest act passed in New Zealand was in point of time the first passed in Australasia based on the English acts of 1870-72. This was "An Act relating to life assurance companies," passed on September 15, 1873—the Victorian Act becoming law only some few months later. The protection of life policies under part ii. of the act (Sec. 46) followed closely the provisions of the New South Wales Act of 1862, giving protection up to a maximum of £2,000 after an endurance of ten years, whilst an annuity not exceeding £100 was protected after six years, where the annuity is payable after the purchaser attains fifty years of age. The act also provided that if the assured decided to surrender his life policy the surrender value should not be protected against his creditors. (It further provided that married women might effect policies if expressed to be for their separate use, with protection against the husband's creditors, and it also protected insurances taken out for the benefit of a wife or wife and children.) The provisions quoted, however, were repealed by "An Act relating to life assurance policies," passed November 8, 1884. Under this amending act (Sec. 33) the property and interest of a holder of a policy is protected against creditors and shall not pass under any general assignment for creditors, nor be made available for his debts in intestacy, nor for debts or legacies under his will unless specially directed by such will. The maximum amount of £2,000 of assurance was fixed (exclusive of bonuses) irrespective of the duration of the policy or policies, and with a limit of £104 per annum in the case of annuities. In the event of there being policies in excess of the statutory limit the policy-holder (Sec. 34) is entitled to elect if he become insolvent, which policy or policies, or which part thereof shall be protected; failing him the trustee in bankruptcy may elect, and his title to the unprotected part of the assurance shall be registered by the company. Should it be proved that any policy was taken out with intent to defraud the assured's creditors, protection lapses. By sub-section 6

it is enacted that the policy-holder for three years after bankruptcy is incapable of selling or assigning his policy or of surrendering it except in consideration of a paid-up policy, or of mortgaging except for the purpose of keeping the policy in force.

An act was passed, dated September 1, 1885, amending Section 33 of the 1884 act to the extent that the policies protected are those dependent upon the life of the assured himself, and where premiums are payable during lifetime or during at least seven years at yearly intervals; if the premiums be not so payable the policies need to be seven years in force before being protected. No further legislation affecting protection of policies has been passed.

With regard to Section 33 referred to, the words "or legacies under a will," have been the subject of judicial interpretation. *Tibbitt vs. Tibbitt* (in 1895). In this case it was held that a disposition of the residue of an estate including a life policy did not constitute a "legacy" within the meaning of Section 33, therefore passing generally under the will.

MacDonald vs. Bolton (March, 1897). In this case under the will of the assured, his wife was devised the whole of his real and personal estate, and it was held that the policies passed under the will and were protected from creditors.

Downes (February, 1898). The assured by will made one fund of his property, including his policies, and directed that his debts be paid out of such fund. It was held that a special direction existed covering the policies, and the creditors of the assured obtained judgment in their favor.

Ruddenklau vs. Ruddenklau (February, 1898). The assured left a will making a general distribution of his property in favor of his next of kin; the widow, however, claimed an intestacy for the policies, but the court held that the will covered the policies, which, therefore, passed to the next of kin.

Smith (March, 1901). The general declaration made by will that the property was left subject to payment of debts whilst the residue was to be invested and the income thereof paid to the widow was held to be a special direction within the meaning of the act, and the policy moneys were available for payment of the debts of the assured.

Victoria.

(Census, population, 1901, 1,201,070.)

In the State of Victoria a "Life Insurance Companies' Act" was passed on November 25, 1873, based mainly on the English acts of 1870-72, the sections of which were expanded to 44, and it contained among the new provisions, a measure of protection of life policies. Section 37 of the act conferred protection up to £1,000 in the whole in any policy or policies on the life of the assured after having endured two years; if he died within that period the amount of the premiums paid should be assets for the payment of his debts. This section received judicial interpretation in the case of Davey vs. Pein (September, 1885), when it was decided that the protection afforded "extended to any policy or policies (whatever the amount assured) the surrender or market value of which in the aggregate does not at the time of protection arising exceed £1,000." This thirty-seventh section was repealed and reënacted by the "Companies' Act, 1890," and formed Section 369 of that consolidating act, which section was repealed on October 17, 1900 by the "Companies'

Act, 1900"—an act to amend the life assurance provisions of the Companies' Act, 1890, a measure which is now in force. Section 3 of this latest act provides that protection shall be afforded to the assured to the extent of £1,000 of the sum assured by any policy or policies, with the proviso that in event of insolvency within two years of the policy or policies being effected, then the policies shall be available for payment of debts. It is provided, also, that an insolvent holding any unprotected policy or some person authorized to act for him, shall, within three months, be entitled to purchase the official assignee's property and interest—the purchase price not to exceed the premiums paid. Provision is also made that where a voluntary settlement has been made of any policy or policies on the assured's own life, which is void or voidable in event of insolvency, protection shall be afforded to the same extent as for ordinary policies "according to and in order of priority of such settlements." Where insolvency occurs and the property and interest of the assured exceeds £1,000 of assurance the assured (or trustee of any voluntary settlement of his policies) may by notice in writing to the company determine which policy or policies, or portions thereof, including bonuses, shall be protected up to the statutory limit. In default of such notice being given within one calendar month of the insolvency, and on the application of the official assignee of the estate, the company shall cancel the policy or policies and issue new ones in substitution, so as to afford the assured the statutory protection and give the official assignee the excess; it is also declared that where necessary the premiums payable shall be fairly apportioned between the holders of the new substitution policies.

The following constitutes sub-section 3 of Section 3, and is of some interest in view of the considerable litigation in Australia in connection with the interpretation of wills:

"(3) Notwithstanding anything contained in his will or any codicil thereto, on the death of any person, the property and interest of such person in any policy or policies of assurance of his life maturing only at his death shall not be assets for the payment of his debts except those (if any) for the payment of which he shall in such will or codicil declare an intention to make such property and interest assets by words expressly referring to such policy or policies, and expressly negativing the provision of this section, but if he dies within four years after the date of any policy, a portion of the sum paid under such policy equal to the amount of premiums actually paid in respect of so much of the sum assured as exceeds £1,000 shall be assets for the payment of his debts."

It will be noticed that the sub-section first refers to "policies maturing only at the assured's death"; it apparently, therefore, does not include endowment-assurances, nor does it place any limit on the sum assured. In case of death within four years after the date of any policy, however, should there exist any assurance (or endowment-assurance) exceeding £1,000, there shall be available for debts out of the policy moneys paid a sum equal to the premiums paid on such excess assurance. The intention of the act is not made clear in this sub-section, and doubtless we shall hear more of the matter hereafter, and indeed judicial interpretation will be necessary as regards some other sections of this act. (It may be mentioned that Sections 5 and 6 of this amending act were passed retrospectively to clear up doubt which had previously arisen, in the case of assignments of policies by means of the well-known statutory form of 1873 indorsed on the back of policies and registered by the com-

pany, whether it was intended that no dealings with policies so transferred were contemplated *during* their currency, and if the power of the transferee to discharge any policy extended only to all moneys payable actually on death occurring or maturity of policy respectively.)

With regard to cases decided by the courts in Victoria, the following may be mentioned:

Ettershank vs. Dunne (May, 1879). In this case the judge expressed his opinion that "the Act of 1873 was not retrospective in its action"; and it may be that consequently any policies which were issued in Victoria before 1873 were not entitled to protection against creditors.

Luth's Policies (Davey vs. Pein) (September, 1885). It was decided herein that the protection extended to £1,000 of the surrender or market value of any policy or policies, and not to £1,000 of assurance.

Allen vs. Edmonds (June, 1887). It was held that the assured may dispose of his protected policy, or bequeath it, and up to the statutory limit it is not liable for the debts of the assured unless so specially directed in his will. The assured by will directed his funeral and testamentary expenses to be paid out of his estate, and subject thereto devised his estate, and the court held that "as there was not sufficient estate beyond the policy to pay all the debts, the assets must be marshalled for the purpose of having the funeral and testamentary expenses which were charged paid out of the protected policy moneys."

Tasmania.

(Population, Census 1901, 172,475.)

The New Zealand and Victorian Acts of 1873 were speedily followed by the pasage in Tasmania of the "Life Assurance Companies' Act" of September 18, 1874, which was also based mainly on the English Acts of 1870-72.* By Section 38 it was enacted that protection to the extent of £1,000 in the whole in any policy or policies should be afforded, but in case of death within two years the amount of the premiums paid should be available for the assured's debts. Section 38 also contained the following proviso:

". . . Where any policy so protected as aforesaid exceeds in amount £1,000, the trustee of the estate of any bankrupt in whose name or on whose behalf such policy may have been issued, may require the company issuing such policy to cancel the same and to issue substituted policies of equal standing in the books of the company with the former policy and amounting in the aggregate to the amount of such former policy; and one of such substituted policies shall be for the sum of £1,000 in favor of such bankrupt or whom he may appoint, and the other or others of such policies for the residue of the amount of such former policy in favor of such trustee who shall hold and dispose of the same for the benefit of the creditors of such bankrupt; and in case such company refuses or neglects to issue such new policies upon demand, then such trustee may after the expiration of one month from the date of such demand sell and dispose of the interest of such bankrupt in the original policy or surrender the same to the said company in the same manner in all respects as other property vested in such trustee may be disposed of by him, and shall pay to or for the use of the bankrupt so much of the proceeds of such sale as shall represent the purchase or surrender value

* By this act two previous measures entitled "The Life Assurance Encouragement Act, 1866," and "The Policies of Assurance Act, 1868," were repealed. At date of the former, however, no insurance company had been incorporated in the colony or was enabled to be sued there.

(as ascertained by such sale or surrender) of a policy for £1,000 on the life of the bankrupt of equal standing with such original policy."

This manifestly failed to cover the contingency of several policies existing on the same life and aggregating a sum in excess of £1,000; and by the "Life Assurance Company's Act," 1885, Section 38 of the 1874 Act was repealed. Section 4 of the amending act gives protection to the extent of £1,000 of the sum or sums assured, together with bonus additions, by any policy or policies on the assured's own life after having endured for two years, but if death ocurs within two years "the premiums paid shall be assets for payment of debts."

By Section 5 it is enacted that:

"If any policy-holder entitled to protection (under the last preceding section) shall be the holder of two or more policies assuring a greater amount in the whole than £1,000, he, or, in the case of his death, his personal representatives, shall be entitled after the happening of the event by reason of which the necessity for the protection arises, by notice in writing left at the offices of the company or companies liable under such policies respectively, to elect which of such policies, or what parts thereof, respectively, up to the said sum of £1,000 in the whole shall be protected as aforesaid. If such policy-holder or his personal representatives shall fail so to elect within fourteen days after being requested so to do by the person who would be entitled to such policies but for the said protection, by notice in writing served upon him or them personally or left at or posted to his or their last known place of residence in Tasmania, then the person otherwise entitled as aforesaid may elect in like manner and may thereupon proceed to have his title registered to such policy or policies or such part or parts thereof respectively, as he thereby becomes entitled to; and where the interest in any policy is divided (under this or the preceding section) the bonus additions, if any, to such policy shall be divided in the same proportions as the amount of the policy and be disposed of in the same manner."

The existing provisions of the amending act were the subject of a legal decision in the case of Featherstone's policies (October, 1896), when it was decided by the court to make the necessary division of interests under the policies existing, which were only partly protected, as between the trustee in bankruptcy and the assured's representatives. No serious difficulty in applying the provisions of the act seems to have been experienced in this case.

Queensland.

(Population, Census 1901, 496,596.)

In Queensland, which became a separate colony in 1859, "An Act to encourage and protect life insurance and other life provident arrangements" became law on September 23, 1879, by which (Sec. 2) the property and interest of the assured or of his personal representatives in any policy of assurance on his own life, and in the moneys thereunder, was protected from creditors. The widest measure of protection was thus afforded. It was provided, however (1) that should death occur (during insolvency) within three years of the date of the assurance the premiums paid, with simple interest of 6 per cent., should be available as assets for payment of debts; (2) that where the premiums for any policy were payable during a term of less than seven years, the policy shall be protected only if death occurred, until after such policy had endured for three years; and (3) that protection should not extend to moneys received

by the assured in respect of any policy in his lifetime. From this last proviso it may be assumed that endowment-assurances maturing and annuities becoming payable during insolvency were not covered by the act.

It was also provided by the same enactment that married women's policies should not be subject to the debts or control of their husbands, provided that by the policy the payment of premiums was made to extend over seven years, or otherwise not until (except in case of death) the policy had endured for three years. The act was repealed on December 31, 1901, when the "Life Assurance Companies' Act, 1901," became law. This measure is the most comprehensive and perfect of any general statutes affecting life assurance companies passed in any of the States of the Commonwealth, and will probably be taken as a model by the Commonwealth Parliament when the subject of federal legislation remitted to its care is taken up. By Section 18 the property and interest of the assured "in a policy effected upon his own life" is protected from creditors irrespective of amount. Whether this means that every life policy is protected (as provided by the earlier act) is not altogether free from doubt, although doubtless so intended.

Section 18 may be given *in extenso* as being the most recent enactment in Australia, and, therefore, made in the light of a lengthy past experience. Section 18 provides that:

"The property and interest of the assured in a policy effected upon his own life shall not be liable to be applied or made available in payment of his debts by any judgment, order, or process of any court, and shall not in the event of his insolvency pass to the trustee of his estate.

"In the case of an assured person dying after the passing of this act the moneys payable upon the death of "the assured under or in respect of a policy effected upon his life shall not be liable to be applied or made available in payment of his debts by any judgment, order, or process of any court, or by retainer by an executor, or adminstrator, or in any other manner whatsoever, except by virtue of a contract or charge made by the assured in his life time, or by virtue of an express direction contained in his will or other testamentary instrument executed by him that the moneys arising from the policy shall be so applied.

"A direction to pay debts, or a charge of debts upon the whole or any part of the testator's estate, or a trust for the payment of debts shall not be deemed to be such an express direction:

"Provided that in case of the death of the assured within three years from the date of the policy a sum equal to all sums which have been paid by way of premium on such policy, with simple interest thereon at the rate of £5 per centum per annum, shall be set apart from the moneys payable under the policy, and shall be available for the payment of the debts of the assured:

"Provided, also, that in any case where the time stipulated by any policy during which premiums shall continue to be payable during the lifetime of the assured is less than seven years, the provisions of this section shall not apply, except in case of the death of the assured, until the policy shall have endured for at least three years."

By Section 19 married women may effect policies, and policies effected in the terms rendered familiar by modern married women's property acts are also protected in favor of the beneficiaries. By Section 20 a minor of the age of sixteen years and upward may effect a policy upon his own life and shall be competent to have and exercise "all the powers and privileges of policy-holders in relation to such contract, other than

the right to assign the same, as fully and effectually as if he were of the full age of twenty-one years." Some doubt exists as to the extent of the power hereby conferred. Since a minor cannot assign or mortgage his policy, his power to allocate the policy moneys should death occur during his minority may possibly need to be the subject of legal consideration hereafter. Coming to cases decided by court of the State the following may be mentioned:

Goodrick (February, 1896). In this case it was held by the full court that a "gift" of policy moneys for the benefit of creditors was valid, notwithstanding Section 2 of the 1879 Act (now Sec. 18 of the Act of 1901). The assured in his will had declared that his debts should be paid out of his estate and the residue invested for the benefit of his family, and the direction was held to extend to the policy moneys. The recent amending act now governs in such a case.

South Australia.

(Population, Census 1901, 362,604.)

In South Australia the first "Life Assurance Companies' Act" became law on November 17, 1882. Under Section 33 protection was afforded to life policies to the familiar extent of from £200 after two years up to £1,000 after seven years. No protection was afforded to annuities. This section was repealed by an amending act passed December 11, 1885, under which protection was afforded ranging from £200, in addition to bonuses, after two years duration up to £1,000, in addition to bonuses, after seven years' duration. In event of insolvency a trust was *ipso facto* created under any protected policy, in the interest of certain beneficiaries (wife, husband, child or children, grandchild or grandchildren, father, mother, brother or brothers, sister or sisters, grandfather or grandmother of the assured) and the assured by will should apportion the moneys among these beneficiaries or any of them, in default of which the estate would be distributed as in intestacy. The assured was required to notify the company of his insolvency, and could be his own trustee in respect of the protected assurance. In case of assurances exceeding the limit of protection the assured should elect as to the protected portion.

This amending act was soon repealed by the "Policies Protection Act" of December 9, 1887, under which (Sections 3 and 4) a policy on assured's own life is protected up to £2,000 of the moneys assured (inclusive of bonuses) provided it has endured at least two years. In event of more than one policy being effected the protection extends to such policies one after the other in order of age, until the limit is reached. It is expressly provided that unless the policies be specially directed by will, they shall not be assets for assured's debts, but shall remain vested in the assured with power of disposition in his lifetime, and at his death shall vest in his legal personal representatives. The existing law being thus summarized, certain legal decisions may be mentioned:

Goodchild (November, 1884). The assured died insolvent and inestate, and it was held that the estate at his death passed into the hands of the public trustee for distribution, and the moneys accruing under the policies were not entitled to be protected from creditors. (The act passed in 1887 now protects in such a case.)

King (November, 1887). In this case it was held that the date of the first policy determined the extent of the total protection afforded. (The act of December, 1887, afterwards made provision on this point.)

Donaldson (November, 1889). It was decided by the full court that an endowment-assurance was a policy protected from creditors, although in a lower court it had been held that an endowment-assurance, being a contract of a compound character, was not "a policy on his own life," such as was intended by the terms of Section 3 of the 1887 Act, so was not protected.

West Australia.
(Population, Census 1901, 184,124.)

In this State, sometimes called the "Cinderella" of the Commonwealth, on account of its only recently developed rich gold-mining resources which have induced a rapid growth of population, legislation affecting life assurance policies was first passed in 1889. The "Life Assurance Companies' Act" became law on December 4, 1889. By Section 33 life policies are protected in terms similar to the provisions of the New South Wales Act of 1862, and for amounts ranging from £200 to £2,000 acording to duration. The policy-holder, or his personal representatives, may elect, where the assurances exceed the statutory protected limit, as to which policies or part thereof shall be protected; if failing to elect within ten days after being called upon to do so, the sheriff or trustee may then elect and have his title to the excess assurance registered by the company.

No amending legislation has been passed and no legal decision of any importance requires to be noted.

By Sections 68 and 69 all policies while on the West Australian register of a company are declared to be subject in every respect to the laws of such State, but any policy may at the request in writing of the policy-holder, with consent of the company, be transferred to another register outside such State and shall thereupon cease to be subject to the laws of West Australia. These provisions apply retrospectively as well as prospectively. No retrospective action is given to Section 33 conferring local protection on life policies; it may be asked, therefore, whether the time when protection will accrue by the act runs from the date of the passage of the act only, in which event an assurance for £2,000 would not be fully protected until after December 4, 1899.* The clause reads:

"Provided, that no policy for a life assurance or endowment shall be so protected until it shall have endured for at least two years."

If for "endured" we are to read "has continued," instead of "existed," the date of the act may need to be borne in mind; in this connection also must be noted the dates of passage of the various acts in vogue in the other States. The measure of protection afforded to a policy effected in one State and later transferred to another, is a matter not unattended with difficulty.

It may also be pointed out in passing that inasmuch as in Australia the law vests the general assets of a bankrupt in his official assignee, if a policy be taken out by a bankrupt, no protection is afforded it, and any such policy automatically vests in the official assignee even if it have no surrender value claimable by him at the time, and in order that the assured may obtain the benefit of the assurance the interest of the official assignee needs first to be purchased. Whether thereafter such a policy acquires any protection from future creditors is not clear, since the assured becomes an assignee of the policy-holder.

* Vide the Victorian Case, Estershank vs. Dunne, 1879 (see page 20).

General Remarks.

It now only remains to offer a few comments on the general features of the doctrine of protection of life policies which has now attained world-wide recognition. It cannot but be admitted that life assurances have become a permanent feature of modern civilization, and similarly it may be said that the doctrine of protection of life policies has likewise come to stay. The devices of law for policy preservation are obviously subject to the defects incidental to human nature; and the greater the part which the doctrine of policy protection has to play in the affairs of daily life, the more searching must be the scrutiny of the law alike by friendly and by hostile critics, and the less chance there is that finality may hope to be reached in one step.

With regard to judge-made law concerning protection of policies, a valuable body of legal interpretation is now in course of creation. Much legal difficulty has arisen from imperfect draughtmanship, a feature not to be wondered at considering the high pressure work of some of our legislative bodies, at least in Australia.

With regard to the different forms which protection of life policies has assumed as referred to herein, it may be conceded that whatever the nature of the State enactment, the safety of the principal has been sought in the interests of the family; but whether the restrictions variously placed upon the amount of that principal are justified or not is a question upon which divers opinions have led to diverse legislation. Inasmuch, however, as no specific restriction can well be placed at law upon the amount of property which may be embraced by a deed of settlement, and whilst no restriction has been placed upon the amount to be assured by any policy conveyed to trustees by a specific deed of trust, or upon the amount of any policy effected in terms of the Married Women's Property Acts, there would seem to be some reason to conclude that on the whole the provisions of the Queensland Life Act, which do not limit the sum protected, are best worthy of adoption. So far as Australia is concerned, the average life policy is but small. Whilst the standard of living in general is higher than in some older-settled countries, life insurance has appealed to a lower social stratum than say, in England (apart from industrial business). The average policy in British offices is given as £348 by Monilaws; in Australasian offices, the average policy is given as £261 by the government statistician of New South Wales, who also gives the figures for the United States as £465, and for Canada, £333. Including bonuses, the average policy in the oldest Australian office in 1902, amounted to £344.

The improvements possibly still to be made in the existing series of legal enactments regarding protection of life policies seem to need a word of reference.

It is true that the life policy as protected forms a safe provision in event of death, but the aim now seems to be, whether justified or not, to make that provision available practically at call, or as if an open cheque had to be met by the office upon a claim falling in, without any legal expenses such as calling for probate or letters of administration would require, provided always that satisfactory proofs of death and identity are first produced. Under a deed of settlement the trustee may collect the policy moneys easily, expeditiously, and with a minimum of expense. The transfer of life policies by means of the statutory indorsement provided by several of the Australian acts also admits of a speedy and costless change of ownership of a policy, and of prompt payment of

the claim when it arises free of legal expenses. The provisions of the American and Canadian policy forms creating specific beneficiaries have a similar object, but not altogether free from complication. A plan which is sometimes adopted in Australia is to have the policy made out vesting in the wife of the assured with the proviso that in event of her prior death the policy reverts to the assured's own executors or administrators. This method obviously necessitates the concurrence of the wife, whilst living, in any dealings with the policy whether by way of mortgage sale or surrender. It might happen also that the wife become bankrupt in respect of her own estate, or the marriage be dissolved by law. Another plan has been to effect the policy in the names of the husband and wife as point tenants; to this obvious objections occur, especially as to the measure of protection from creditors and as to any succession duty. The most recent form of a special policy contract is probably that contemplated by the recent Queensland Act already referred to. By Section 4 of this act a special policy styled "indefeasible" is created, defined as being "a policy which upon the face thereof, and in accordance with a recited contract between the company and the assured, states that neither it nor any bonus adidtions or other accretions thereto, nor any interest therein shall in any way during the currency thereof be capable of being assigned, sold, encumbered, surrendered, disposed of, or in any way diminished or impaired." By sub-section 6 of Section 41 "no assignment or transfer of an indefeasible policy shall be registered by the company, and the company shall at all times during and after the termination of the currency of an indefeasible policy but subject, nevertheless, to the provisions of Section 22 of this act be liable for the full amount of such indefeasible policy and of any bonus additions or other accretions thereto until duly discharged from such liability according to law." (By Section 22 no policy shall lapse so long as any premiums in arrear with interest are not in excess of the surrender value of the policy.) It is not anticipated that there will be any considerable demand for these indefeasible policies. Such devices it may be urged are altogether unnecessary and uncalled for.

Then, as regards taxation, if a fund is created by means of a specially protected policy, the State which has created the protection may fairly claim to use its taxable right over such fund to a reasonable extent.

On the whole, it may be said that no better way for disposal of a man's property at death has been found than by means of his last will and testament, which must, perforce, be recognized as the matured expression of his wishes regarding the disposal of his property. John Stuart Mill says, "All owners of property should, I conceive, have power to dispose by will of every part of it, but not to determine the person who should succeed to it after the death of all who were living when the will was made," and with the expression of this opinion the general consideration of the subject of protection of life policies may perhaps fitly conclude.

KURZE NOTIZ.

DER SCHUTZ VON LEBENSVERSICHERUNGEN GEGEN DIE FORDERUNGEN VON GLÄUBIGERN.

VON ARTHUR DUCKWORTH.

Auf verschiedene Weisen hat man in Gross-Britannien, den Vereinigten Staaten, Canada, Süd-Afrika und Australien seitens der Regierung versucht, Policen zum Vortheil der Familien der Versicherten zu fördern und zu beschützen. In Gross-Britannien ist die Steuer-Freiheit in den Grenzen der Lebens-Versicherungs-Prämien anschaulich gemacht, sowie die besondere Gesetzgebung durchgesetzt von den „Married Women's Property Acts"; in den Vereinigten Staaten ein Gesetz ist durchgegangen in 1840 im Staate New York; in Canada ein Gesetz in Ontario in 1865; ebenso existiert in der Cap-Colonie eine besondere Gesetzes-Verordnung zu diesem Zweck, ferner auch in der Orange-Fluss-Colonie; so auch in South Wales, wo die erste Schutz-Gesetzgebung in Australien durchging, in Neu-Seeland, Victoria, Queensland, Tasmania, Süd-Australien und West-Australien, welche alle von dem Verfasser hervorgehoben und critisiert werden. Besondere Urtheils-Sprüche im Zusammenhang mit Gerichtsfällen in Australien werden angegeben. Der „Queensland Act" vom Jahre 1901 wird als vielleicht der umfassendste und vollkommenste irgend welcher allgemeiner Statuten bezüglich Lebens-Versicherungen citiert, unter welchem die Lebens-Versicherungs-Police ohne jeden Rückhalt bezüglich des Betrages beschützt wird. Es wird dringend gerathen, dass, da Eigenthums-Uebertragung in keiner Weise begrenzt ist, ebenso wenig, wie der Betrag einer Versicherung unter dem „Married Women's Property Act" unter Berücksichtigung der Geringfügigkeit der Durchschnitts-Police — welche in Gross-Britannien mit 348 Pfund angegeben ist, in den Vereinigten Staaten mit 465 Pfund, in Canada mit 333 Pfund, in Australien mit 261 Pfund — man eine Familie durch besondere Gesetzes-Vorschriften beschützen solle gegen den Druck des Insolvenz-Gesetzes durch die Fürsorge einer Lebensversicherungs-Police, welche in Zeiten finanzieller Behaglichkeit und Sicherheit erworben worden ist; es ist dies ein lobenswerthes besonderes Ziel, welches mit den Gefühlen der herrschenden Abtheilung der Commune harmonisiert.

RÉSUMÉ.

LA PROTECTION DES POLICES DE VIE CONTRE LES RÉCLAMATIONS DES CRÉANCIERS.

PAR ARTHUR DUCKWORTH.

L'État a cherché de diverses manières, dans la Grande Bretagne, les États-Unis, le Canada, l'Afrique du Sud et l'Australie, à encourager et à protéger les polices d'assurance prises pour le bénéfice de la famille de l'assuré. Dans la Grande Bretagne on trouve en évidence l'exemption limitée d'impôt sur le revenu, pour les primes d'assurance sur la vie, et la législation spéciale prévue par les Acts sur la propriété des femmes mariées; aux États Unis une loi a été passée par l'État de New York en 1840; au Canada des lois ont été passées en 1865 dans l'Ontario, dans les Colonies du Cap et de la Rivière Orange une jurisprudence spéciale existe; dans le Nouveau Pays de Galles (où les premières lois protectives furent passées en Australie), dans la Nouvelle Zélande, Victoria, Queensland, la Tasmanie, l'Australie Méridionale et l'Australie Occidentale, existent également des lois que l'auteur cite et passe en revue. L'auteur cite également certains jugements rendus en Australie et qui ont trait à la matière. L'acte du Queensland de 1901 est cité comme étant peut-être le plus complet et le plus parfait de n'importe quel réglement général touchant l'assurance sur la vie: il protège la police de vie sans restriction quant à la somme assurée. L'auteur insiste sur le point que, puisque il n'y a pas de limite placée sur la valeur de la propriété qui peut être passée en douaire ou sur la valeur de l'assurance cou-

verte par l'act sur la propriété des femmes mariées et considérant la faible moyenne des polices prises (placée à 8,700 Frs. dans la Grande Bretagne, 11,625 Frs. aux États Unis, 8,325 Frs. au Canada, 6,525 Frs. en Australie), il est en conséquence d'une digne tendance sociale, qui s'harmonise avec les sentiments de la partie gouvernante de la communauté, de protéger, par des lois spéciales, contre l'étreinte des lois de faillite, une provision de famille obtenue au moyen d'une assurance sur la vie souscrite à une époque d'aise et de sécurité financière.

EXISTING LEGISLATION FOR THE PROTECTION OF WIVES AND CHILDREN AS LIFE INSURANCE BENEFICIARIES AGAINST THE CLAIMS OF CREDITORS.

BY

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The subject of this paper is "Existing Legislation for the Protection of Wives and Children as Life Insurance Beneficiaries Against the Claims of Creditors," and in treating the subject the information which was left at my disposal by the late Mr. McCabe was found to be incomplete, owing to his inability by reason of sickness to give the matter his usual careful attention. I have therefore been obliged largely to go over the ground and give you the best information that has been obtainable within the limited time at my disposal, giving special attention to Canadian legislation on the subject, with which I am more familiar, and touching incidentally only on the legislation as existing in the States of the Union as far as my knowledge on the subject serves me.

I desire to place on record my appreciation of the great assistance rendered me in the preparation of the following paper by Mr. Taylor, B.A., LL.B., Secretary of the North American Life Assurance Company.

The Dominion of Canada is divided into seven provinces and one territory, in all of which there is legislation more or less on the subject of life insurance. It might be interesting, in order to have a better understanding of the effect of legislation on the subject of our inquiry, to consider the condition of these provinces, or some of them, at the time the country became an English colony.

It has been laid down by Blackstone that "immediately upon discovery of a colony all the English laws then in being, which are the birthright of every subject, are immediately there in force." But this rule must be taken with very many exceptions and restrictions, as the new settlers or discoverers carry with them only so much of the English law as is applicable to their own situation and their own condition. For instance, laws as relating to a more highly developed state of the community would not be in force in a colony. Such laws might be exemplified as regulations for police, revenue, and the maintenance of a clergy. The custom has been that the provincial or colonial courts, subject to the revision or control of the English Parliament, usually decide what English laws are in force in the new settlement.

The question as to what laws are introduced into a colony depends largely upon the condition of the colony prior to the period when the same becomes part of another empire. If the new colony was an uninhabited country or discovered or planted by English subjects the effect is entirely different from that of the acquisition of a colony by conquest. The New England colonies are instances of additions acquired by discovery and settlement and being governed under English law. Until the same came under the United States Federal constitution we have to conclude that the common law of England prevailed in these States, and

that the rights, benefits and interpretations of contracts were based upon the interpretation of English law, subject to changes and alterations that were made from time to time by legislative enactment. While it is presumed that the Common Law extended to and was in force in the new England colonies, this does not apply to other States, such as Florida, Louisiana and Texas, where other governments were organized and existed at the time of the acquisition of these States by the Union. The rule in such cases is that the laws as they are at the time of acquisition remain as they are until altered by subsequent enactments.

It might be interesting before coming down to the subject itself to explain the reason of certain differences on the subject in hand and to show on what basis these differences exist. The principle that has been just referred to as to the effect of acquisition of new territory has been recognized and aptly referred to by Chief Justice Marshall in the case of Johnson vs. McIntosh, 8 Wheaton, 582. With respect to some of the colonies and their internal government there was a great difference: some were provincial establishments, their constitution depending upon commissions issued by royal grant to governors, who had charge of the legislative matters, and under whose authority provincial assemblies could make local laws for the government of the colony, although such local laws were sometimes in repugnance to the English laws. Such establishments were in New Hampshire, New York, New Jersey, Virginia, the Carolinas and Georgia. Proprietary governments, where territory was handed over by the Crown to individuals with certain powers of legislation in a subordinate degree. Pennsylvania and Maryland were of this type as originaly settled. Chartered governments, with powers to make laws and by-laws for internal regulation. Such were Massachusetts, Rhode Island and Connecticut. We have already referred to Louisiana and other States having established governments at the time they became part of the Union. The principle that applies to these States would be somewhat the same as applied to the Province of Quebec at the time it became an English colony by acquisition.

As it may be interesting to know, the law of Quebec differs materially from the English law, being founded upon the French law as it existed prior to the ceding of this country to England. In 1763 by the Treaty of Paris the French possessions were ceded by that country to Great Britain, and afterwards in the same year a proclamation was issued introducing the law of England, civil and criminal, into the ceded territory then formed into the Province of Quebec. But the proclamation was defective in leaving a large part of the territory acquired without any provision as to its government. Dissatisfaction gradually arose among the French Canadian population, which then constituted a large part of the inhabitants of the country. They were dissatisfied with the English law, which was entirely different from the French civil law, which they had been living under for over a century. Later on, in 1774, a new proclamation was issued enlarging the territory covered by the prior one so that it included Upper Canada, and provided that in all matters relating to civil rights and properties, customs and usages, the law of Canada, i. e., the French law, should govern with certain restrictions. The criminal law of England was retained for the whole colony. Later on the Province of Canada was divided into Upper and Lower Canada. By the enactment just referred to, Upper Canada was placed under French civil law, which soon became obnoxious to the English settlers who had settled in that part of the country, and who were used to the English common law and totally unacquainted with the French

civil law as it existed in Lower Canada, or the Province of Quebec. The first act of the Parliament of Upper Canada, in 1792, introduced the English law, after reciting that the province was principally settled by English subjects unacquainted with French laws and usages then in force, and from the date of this enactment (the 15th of October, 1792) English law was then introduced into Ontario as it was at that day in regard to property and civil rights, excepting those which were inapplicable to the condition of the colony at the time.

The question as to what laws were in force in the Province of Ontario has been fully discussed and the principles laid down by different cases bearing upon the subject. The rule, however, has been in all cases to leave the question as to what laws are or are not in force in a colony upon its acquisition to the decision of the courts of the colony as occasion may require, and such appears to have been the custom in the New England colonies as well as in the provinces of Ontario and Quebec. It will, therefore, be seen that a decision which would hold good on the question of creditors' claims in one State might not have have the same force and effect in another State or colony.

Before going into the legislative enactments affecting the question in hand in the different provinces of Canada, it may be interesting to refer to what may be considered the foundation upon which policies issued for the benefit of wives and children have been declared free from the claims of creditors. According to the old English common law the husband when he married became entitled to all the estate of his wife during their joint lives and all her personal effects in possession became his. If he did not reduce into possession her outstanding assets or choses in action during their marriage, they survived to his widow on his death. This right of possession to the wife's property was acquired in consideration of the obligation which fell upon him at marriage of supporting her, and owing to this duty not being fulfilled in many cases, there gradually grew up a practice in the Old Court of Chancery to remedy the injustice being done to the wife, and the principle of recognizing a wife's separate estate gradually was established, and the object of the Court of Chancery was to prevent her losing her possessions in case of the bankruptcy of the husband after marriage, or his failure to support her. The custom may have been introduced through the Custom of London in regard to a femme covert, by which the wife of a freeman trading by herself had certain privileges independent of her husband, and he had no interest in her transactions. Gradually the Court of Chancery recognized that this separate property of a married woman should not be utilized for payment of the debts of her husband, and the English law securing wives and children the benefit of insurance free from the claims of their husbands was passed in connection with the Married Woman's Property Act in 1870, which appears the earliest enactment on the English statute book in reference to the subject of life insurance for the benefit of wives and children freed from the claims of creditors. This provision was repealed, and the English law is now contained in the Married Woman's Property Act of 1882.

In the Province of Canada the first act affecting Upper Canada passed in connection with the subject was entitled "An Act to Secure Wives and Children the Benefit of Insurance on the Lives of Their Husbands or Parents," 18th September, 1865. This Act provided that it was lawful for any person to insure his life for the whole term thereof, or any definite period, for the benefit of his wife and children, or his wife and some of his children, or children only, or some or one of them, and

to apportion the amount of insurance as he deemed proper where it is effected for more than one. Insurance could be effected either in the name of the person whose life is assured, or in the name of his wife, or of any other person, with the assent of such person (as trustee). With respect to insurance previously issued to the date of this enactment it allowed a person, by writing endorsed upon or attached to the policy, to declare such policy to be for the benefit of his wife, or his wife and children, or one or more of them, and to apportion the amount of insurance as he desired. The Act also provided that upon the death of the person insured the insurance moneys due upon the policy should be payable according to the terms thereof or of the declaration as aforesaid, as the case may be, free from the claims of any creditor or creditors whomsoever.

From this date down to the present time there have been amendments made enlarging the scope of the Act and also permitting others than wives and children to hold interest in policies on lives of husbands or parents freed from the claims of creditors. Formerly the mother and the children were the only preferred beneficiaries, or beneficiaries not being beneficiaries for value, against whose interest in policies on the lives of husbands or parents creditors had no claims. The present statute on the subject is found in Revised Statutes of Ontario, Chapter 203, Section 154, Sub-section 1:

> "When the insurance money becomes due and payable, it shall be paid within the time prescribed by Section 80 (which refers to a time-limit of 60 days after proof), and according to the terms of the policy or of any declaration or instrument as aforesaid, and shall, in the case of preferred beneficiaries, be free from the claims of any creditors of the assured, as in Section 151 provided."

Section 151 provides in Sub-section 2 that

> "If the policy was effected and premiums paid by the assured with intent to defraud his creditors, the creditors shall be entitled to receive out of the sum secured an amount equal to the premiums so paid."

Section 159, Sub-section 1, provides that

> "Where a person (hereinafter called the assured), effects an insurance on his or her own life, and either by the contract of insurance, or by instrument in writing attached to or endorsed on, or identifying the said contract by number or otherwise, declares the insurance money or a portion of the principal or interest thereof to be for the benefit of the husband, wife, children, grandchildren or mother of the assured, then such contract shall (subject to the right of the assured to apportion or alter as hereinafter intended) create a trust in favour of the said beneficiary or beneficiaries, according to the intent so expressed or declared, and so long as any object of the trust remains, the money payable under the contract shall not be subject to the control of the assured, or of his or her creditors, or form part of his or her estate, when the sum secured by the contract becomes payable; but this shall not be held to interfere with any pledge of the policy to any person prior to such declaration."

Sub-section 2:

> "The husband, wife, children, grandchildren and mother of the assured shall constitute a class which may be known as 'preferred beneficiaries,' and all other beneficiaries may be known as 'ordinary beneficiaries.'"

With respect to the other beneficiaries, known as ordinary beneficiaries under the insurance law of Ontario, the assured has the power to change the beneficiary without any notice to him to another beneficiary, provided that such prior beneficiary whose interest is cancelled has not been nominated as such for a valuable consideration and notice of such consideration given by the beneficiary or the assured to the company. Under Section 161, "the assured may, in writing, require the insurer to pay the bonuses or profits, or portions thereof, accruing under the contract of insurance, to the assured, or to apply the same in the reduction of the annual premiums payable by the assured, in such way as he may direct; or to add the said bonuses or profits to the benefit; and the insurer shall pay or apply such bonuses or profits as the assured directs; and according to the rates and rules established by the insurer; provided always that the insurer shall not be obliged to pay or apply such bonuses or profits in any other manner than as lawfully stipulated in the contract or the application therefor. This section applies to contracts made before the 4th day of March, 1881, and to bonuses and profits then declared in respect of such policies, as well as to policies thereafter made and hereafter to be made."

It has been decided in the case of the Canadian Mutual Loan and Investment Co. vs. Nisbett 1900 (31 O. R. 565), that the bonus additions to a paid-up policy payable to a debtor are exigible under execution, and a receiver may be appointed to receive the moneys on the application of an execution creditor.

Creditors in Ontario have no claims on insurance moneys payable to preferred beneficiaries, except in so far as Section 151, above referred to, provides. The right of a creditor for relief is, therefore, a question which depends upon the evidence and the facts that may be adduced before the Court, as the case may be. Unless the evidence is sufficient to bring the case under Sub-section 2 the policy would be free from the claims of creditors so far as any preferred beneficiary therein is concerned. There have been statutory additions and changes from the year 1865 down to the present year in respect to contracts of life insurance in Ontario. Gradually the list of preferred beneficiaries has been enlarged so that to the original preferred beneficiaries, the wife and children, there have been added the mother, grandchildren and husband of the assured.

The powers of the contracting parties have been enlarged so that the contract although originally issued payable to the estate of the life by later statutory enactment could be declared a trust by endorsement on the back of the policy or by attachment thereto in favor of wife or children, and later on in Ontario the assured could designate a beneficiary by attaching an instrument in writing to the policy or endorsing suitable words upon the contract. The tendency of the decisions in Ontario have been to protect the wife and children as far as possible and see that their interests in insurance contracts are paid over to them. It has been decided in the case of a benefit certificate which stated that the insurance money was to be paid to the applicant's wife, and the certificate as issued and accepted provided that the money upon death of the member should

be paid to his wife or such other beneficiary or beneficiaries as he might in his lifetime designate in writing endorsed on the certificate, and in default of such designation to his legal personal representatives, that the certificate came within the act to secure for wives and children the benefit of life insurance, R. S. O. 87, Cap. 136, and that the wife's interest was not affected by an absolute assignment endorsed upon it by the insured to a creditor, Fisher & Fisher 25 A. R. 108.

Section 151, Sub-section 6, of the Insurance Act as amended provides that

> "If one or more of the beneficiaries die in the lifetime of the assured and no apportionment or other disposition is subsequently made by the assured the insurance shall be for the benefit of the surviving beneficiary or beneficiaries in equal shares, if more than one, and if all the beneficiaries die in the lifetime of the assured the insurance shall be for the benefit in equal shares of the surviving infant children of the assured, and if no surviving infant children, then the benefit of the contract and the insurance money shall form part of the estate of the assured."

I have been advised that this section has lately been amended so as to strike out the word "infant," allowing the insurance to accrue for the benefit of the surviving children. Previous to this amendment (Subsection 6) in case of one of the beneficiaries dying his share did not accrue to the benefit of the others, and creditors of the insured were entitled to claim as against such share. In the case of McIntyre vs. Silcox, 29 O. R. 593, we have an example of the case of a creditor being entitled to a lapsed share. The policy in this case was payable for the benefit of six of his children, three of whom had died before his death. Subsequent to their death he apportioned the insurance moneys, increasing the shares of two surviving children, diminishing the shares of the three and apportioning the balance of the insurance moneys to four children, causing the policy to be cancelled and re-issued payable to his executors in trust. The law at this time did not prefer the grandchildren, but only the wife, children and mother. The judgment declared the restrictions by his will as to his children valid, but the nomination of the interests of his grandchildren was declared subject to the claims of creditors, and the plaintiff in this case, the grandchild, was declared to have failed to establish his priority to part of the insurance money as against creditors. It will therefore be seen that the legislation as it developed in Ontario resulted largely upon the interpretations put upon the Act as it existed from time to time by the judicial courts.

In another instance, to show the trend of legislation, it was decided in the case of the Toronto General Trusts Co. vs. Sewell, 17 O. R. 442, that where a man, unmarried at the time policies were issued on his life, later on became married and assigned the policy on his life, subsequently dying and leaving creditors, that he could not withdraw the fund from the payment of his debts as the Act at that time only referred to married men taking out policies on their lives for the benefit of their wives and children. The unfortunate circumstance which is shown in this case was subsequently removed by legislative enactment, so that now it is immaterial whether the policy was originally payable to them or later on by endorsement, assignment or declaration attached or by will made subsequently payable to them or for their benefit, and what applies to wives and children of course now applies to all the other preferred beneficiaries.

It has been decided in the case of William vs. Roddick, 27 O.R 537, that where a policy is payable to other than preferred beneficiaries and payment is attacked by creditors it must be shown in order to set aside the payment to the beneficiary that at the time the policy was so made payable the insured was not in a position to make a voluntary settlement.

The effect of making a policy payable to a preferred beneficiary by any of the modes already expressed is to create a trust and withdraw the moneys payable thereunder from the claims of creditors, subject, of course, to any prior dealing with the policy or any prior pledge. Under the Insurance Act while the designation or declaration of a beneficiary is voluntary from the fact that it is optional with the insurer whether he appoints a beneficiary or not, the form on which it is made are forms laid down by the Act and prescribed by it, and if such forms are used in accordance with the Act the effect of such an appointment will be that stated in the Statute, so that the nomination of a preferred beneficiary at any time practically withdraws the insurance moneys from the control of the insured and from his creditors in Ontario subject to the power of re-apportionment among preferred beneficiaries.

It has been decided that the law of Ontario will govern any assignment of a policy which is proposed to be set aside on behalf of a creditor if the document has been executed in Ontario, and it is now the generally recognized principle throughout all the provinces of Canada that any foreign company writing insurance contracts in any of the provinces, by so doing is to be considered as submitting to its laws as to their insurance contracts, and all the provinces now have passed public statutes dealing with the subject of insurance and the rights of the policy-holder and the company, so that in considering the claims of creditors we have to consider the legislation as to the construction of contracts.

Section 143 of the Ontario Act provides that

> "Where the subject matter of any insurance contract is property, or an insurable interest within the jurisdiction of Ontario, or is a person domiciled or resident therein, any policy, certificate, interim receipt or renewal receipt, or writing evidencing the contract, shall, if signed, countersigned, issued or delivered over in Ontario or committed to the postoffice, or to any carrier, messenger or agent, to be delivered or handed over to the assured, his assign or agent in Ontario, be deemed to evidence a contract made therein, and the contract shall be construed according to the law thereof, and all moneys payable under the contract shall be paid at the office of the chief officer or agent in Ontario of the insuring corporation, in lawful money of Canada, and this section shall have effect notwithstanding any agreement, condition or stipulation to the contrary."

While this section provides the rule as to the consideration of the contract, no mention is made as to the rights and status of the beneficiary and under what law his rights are to be governed. But it has been decided that where the parties have agreed to be governed by a foreign law on a subject the Court will recognize such stipulation, but it is questionable under the section of the Ontario Statute just quoted whether the foreign law could be recognized. In Quebec it was held that the assignment of a life policy in fraud of creditors is governed by the law of the place where the assignment is made.

Before leaving the Province of Ontario it might be interesting to note a case which was decided towards the latter end of June of this year

by an appellate court in the Province of Ontario. In this case the facts are as follows: The assured took out a certificate in an assessment society. In the application for insurance he nominated his wife as his beneficiary, adding the qualification "reserving to myself the power of revocation and substitution of other beneficiaries in accordance with the constitution and laws of the order." By the terms of the certificate the benefit was payable at the death of the assured "to the widow or other beneficiary or trustee duly designated" by the assured. When this certificate was issued the assured was married to the plaintiff (who was his wife), but was not living with her. On the 23rd of August, 1899, he went through a form of marriage with the defendant, who was not aware that he was a married man, and he lived with her until his death. Later on he applied to the Society to change the beneficiary from his mother to his wife, whom he purported to have married, and the change was made by the proper officers. After his death the mother assigned to the plaintiff all her right under the certificate.

It was held by the Court that the attempt of the assured to divert the benefit from his mother to defendant "who was not his wife, but merely a dependant" not within the privileged class, being contrary to the Statute availed nothing, and the mother was at the time of the death the only beneficiary. The reservation on the face of the instrument by which the original designation was made of the right to revoke the designation and divert the benefit to another is no stronger as a matter of legal construction than where the original designation is declared on its face to be subject to by-laws which give the same rights. The Statute has been declared to override the by-laws in the latter case and it must therefore override the reservation in the former. In this decision the position of the defendant as being not related to the assured did not affect her legal position at all as she came under the class known as "dependants", who were permitted to take interests in benefit certificates in case of death.

The result of this decision is that in Ontario, as the law at present stands, when the assured has once designated as a beneficiary one of the class of preferred beneficiaries, the interest of such preferred beneficiary is (subject to the power given by the Statute to change the interest among any of that class, as already explained) absolute, notwithstanding any reservation or condition made in the policy itself or in the instrument appointing such beneficiary.

This case of course has not gone to the final court of appeal, which is the English Privy Council, and until this question has been decided upon by the final court of appeal the question at issue is open at any time for reconsideration. But the question is one that is largely open for discussion in view of Sec. 159, Sub-sec. 1 of the Ontario act, where it states that "a trust is created in favor of the said beneficiary (meaning preferred beneficiary) according to the intent so expressed or declared," and it may ultimately be decided in case of appeal that these latter words "according to the intent so expressed or declared" may be sufficient to so qualify the gift as to prevent the same becoming absolute, and enable the assured to change the beneficiary as he desires if the policy contract so permits.

B. QUEBEC.—Under Section 5581 Revised Statutes of Quebec 1888 it is lawful (1)for any husband (a) to insure his life, or (b) to appropriate any policy of insurance held by himself on his life: for the benefit of his wife; or for the benefit of his wife and their children generally; or for the benefit of his wife and his, her and their children generally; or for the benefit of his wife and his or her children generally;

or for the benefit of his wife and one or more of his, her or their children; (2) and for any father or any mother: (a) to insure his or her life; or (b) to appropriate any policy of insurance held by himself on his life, or by herself on her life, for the benefit of his or of her children, or of one or more of them.

Power is also given to the insured to revoke the benefits of any of those in whose favor he could insure his life, or appropriate the policy and make the policy payable among any of the others in whose favor he could effect an insurance or appropriation.

By Section 5604 policies effected or appropriated under this section are exempt from attachment for debts due either by the insured or by the persons benefited, and shall also be unassignable by either of such parties. The insurance money while in the hands of the company shall be free from and be unattachable for the debts either of the insured or the persons benefited, and shall be paid according to the terms of such policies or of any declaration of appropriation or of any revocation relating to the same. Such exemption shall not apply to any policy or part thereof which may have reverted to and be held by the insured.

By Article 5605 it is provided that insurance moneys shall not be deemed to be derived from the succession of, or community of property with the person whose life was insured; and its receipt by any person benefited shall not constitute an acceptance of the succession of such person or of any community of property which existed with such person.

> 5606. "If, however, it shall be proved that all or any of the premiums were paid, at a time when the person whose life was insured was insolvent, in fraud of the rights of creditors, such creditors shall be entitled to recover and to receive out of the insurance money, an amount equal to the premiums so paid; and in such case, the share of each person, when more than one are benefited, will be proportionately reduced.

In Quebec the insolvency of the husband does not render him incapable of appropriating his policy for the benefit of his wife, but the creditor would be protected under Article 5606. Peachy vs. Riverin 1895 (7 QOR SC 519). By statutes in 1898 Article 5604 has been amended so that the insured and parties benefited may join in assigning any policy.

C. PROVINCE OF NOVA SCOTIA.—Previous to the statute which has lately passed the Legislature of the Province of Nova Scotia, the statutory law on the question of life insurance was very meagre in this Province, and the only statutory enactment on the subject is found in the Revised Statutes of Nova Scotia 1884 Cap. 94, being a reference made to life insurance in the chapter on Married Woman's Property Act.

Section 11 provides

> "A married woman, in her own name or that of a trustee for her, may insure for her sole benefit, or for the use or benefit of her children, or of herself and her children, her own life, or, with his consent, the life of her husband, for any definite period, or for the term of her or his natural life, and the amount payable under such insurance shall be receivable for the sole and separate use of such married woman, or her children, or herself and her children, as the case may be, free from the claims of the representatives of her husband, or any of his creditors."

Section 12.

> "A policy of insurance effected by any married man on his own life and expressed upon the face of it to be for the benefit of his wife, or of his wife and children, or any of them, shall inure and be deemed a trust for the benefit of his wife, for her separate use, or of his wife and children, or any of them, according to the interest so expressed, and shall not, so long as any object of the trust remains, be subject to the control of the husband or to his creditors, or form part of his estate. . . . ."

And further on it is provided that

> "If it shall be proved that the policy was effected and premiums paid by the husband with intent to defraud his creditors, they shall be entitled to receive out of the sum secured an amount equal to the premiums so paid."

Some additional changes were made by the statute in 1900, but not affecting the subject of our inquiry.

On the 11th of April, 1903, new provisions relating to insurance went into force in the Province of Nova Scotia. The provisions of this Act resemble almost in toto the provisions of the Insurance Act in force in Ontario with slight changes. The preferred beneficiaries are the same as in Ontario. The Act applies to all contracts now in force or hereafter effected. It provides that "where the assured is a person domiciled or resident in Nova Scotia, or is so domiciled or resident at the maturity of the policy, the policy certificate, or writing evidencing the contract shall, if issued or delivered over in Nova Scotia or committed to the post office or to any carrier, messenger or agent to be delivered or handed over in Nova Scotia to the assured, his assign or agent, be deemed to evidence a contract made in Nova Scotia, and the contract shall be construed and the status of the beneficiary or beneficiaries thereunder shall be determined according to the law of Nova Scotia, and all moneys payable under the contract shall be paid in Nova Scotia at the office of the insurer or its chief officer or agent, in lawful money of Canada."

Provision 10, Sub-section 2, states

> "If the policy was effected and premiums paid by the assured with intent to defraud his creditors, the creditors shall be entitled to receive out of the sum secured an amount equal to the premiums so paid."

Section 12, Sub-section 1, provides that

> "Where a person (hereinafter called the assured) effects insurance on his or her own life, and either by the contract of insurance or by instrument in writing attached to or endorsed on, or identifying the said contract by number or otherwise, declares the insurance money or a portion of the principal or interest thereof to be for the benefit of the husband, wife, children, grandchildren or mother of the assured, then such contract shall (subject to the rights of the assured to apportion or alter as hereinafter enacted), create a trust in favor of the said beneficiary or beneficiaries." . . . .

and it is provided that so long as any object of the trust remains the moneys payable under the contract shall not be subject to the control of the assured or of his or her creditors or form part of his or her estate

when the same becomes payable. Powers are similarly given to vary benefits among preferred beneficiaries and revoke interest in that class in favor of others in the same class.

D. NEW BRUNSWICK.—In the Province of New Brunswick the provisions on the subject are found in An Act to Secure for Wives and Children the Benefit of Life Insurance, passed on the 5th of March, 1895. It applies to every contract then in force or thereafter effected.

Section 6 of this Act provides, similar to Ontario, that where a policy is issued on a man's life payable to his wife or children, or any of them, or where he after issue of the policy endorses upon it or declares by a writing identifying the policy by number that it is to be for the benefit of his wife, or wife and children, or any of them, the policy shall be deemed a trust for the benefit of his wife for her separate use, or of his wife and children, or of his children, or any of them, as the case may be, and that so long as any object of the trust remains the money payable under the policy shall not be subject to the control of the husband or his creditors, except in the case where the policy was effected and premiums paid by the insured with intent to defraud his creditors, and the creditors shall then be entitled to receive out of the sum secured an amount equal to the premiums paid, with interest, thereupon.

Section 11 provides that

> "When the insurance money becomes due and payable, it shall be paid according to the terms of the policy or of any declaration or instrument as aforesaid, as the case may be, free from the claims of any creditors of the assured, except as herein provided."

E. PRINCE EDWARD ISLAND.—The statutory enactments affecting life insurance in this Province are contained in the statute of 1899, An Act Relating to Life Insurance. It permits insurance for the benefit of the wife, or wife and children, or some or one of them, and permits apportionment of the amount as the assured deems proper where insurance is effected for more than one. Upon the death of the person whose life is insured, the insurance money due under the policy shall be payable according to the terms of the policy free from the claims of any creditor or creditors, notwithstanding bankruptcy or insolvency of the person so insured.

F. MANITOBA.—The acts in the Province of Manitoba are similar to those in Ontario, permitting insurance by the husband for the benefit of his wife or children and creates a trust in favor of the beneficiary and while any object of the trust remains the policy shall not be under the control of the husband or his creditors or form part of his estate when the sum secured by the policy becomes payable. It appears that under the statutes of this Province the step-children are treated as preferred beneficiaries, this class constituting the husband, wife, children and step-children.

By the act passed July 21, 1899, the insured was permitted to revoke absolutely the interest of any preferred or other beneficiary, except a beneficiary for value, by means of an instrument in writing attached to or endorsed on or identifying the policy by number or otherwise, and this provision was made retroactive. The wording of the Act is that "the insured may, by an instrument in writing, etc." It now becomes a question whether in the case of his bankruptcy he would be compellable

to execute a sufficient instrument for the purpose of revoking the interest of preferred beneficiaries, but the tendency of the Canadian judiciary has been to protect the wife, except in those cases where there has been a fraud committed as against creditors by withdrawing funds for the purposes of carrying excessive life insurance.
Section 26 of the Act of 1892, and amended in 1895, provides that

> "Policies effected or appropriated for the benefit of a wife and child or children, or of a child and children only, or of a wife only, shall be exempt from attachment for debts due either by the insured or by the persons benefited, and shall be assignable by any of such parties save during minority and the insurance money, while in the hands of the company, shall be free from and unattachable for the debts either of the insured or of the person or persons benefited, and shall be paid according to the terms of such policies, or of any declaration of appropriation, or of any revocation relating to the same. . . . ."

There appears to be no provision preserving the rights of creditors where policies are effected or paid in fraud of creditors as in the other provinces. Although under the Married Woman's Act, 1891 Cap. 95, which permits a married woman to effect insurance on her own life and on her husband's life, with his consent, or such trusts as she may declare it is declared that if she makes investments of her husband's moneys in fraud of creditors any such moneys so deposited or invested by her may be followed.

G. NORTHWEST TERRITORIES.—In the Northwest Territories the law is similar to that in the other provinces, and a trust must be created in favor of the wife and children. Policies are protected from creditors, who are entitled to recover premiums which are paid fraudulently as against them. The preferred beneficiaries include only the wives and children.

H. BRITISH COLUMBIA.—Legislation in this Province is somewhat similar to that in Ontario. It is declared to have been lawful for any person on or after the 21st of February, 1873 to endorse upon or attach to any policy of insurance on his life effected and issued before that date, whether the policy was issued before or after marriage, a written declaration that the insurance was for the benefit of his wife, or of his wife and children, or of his wife and some or one of them, and to apportion the amount of insurance money as he deems proper, where it is for the benefit of more than one life. The Families Insurance Act BC. 1895.

Further on Section 7 declares that where it is for the benefit of the above parties the policy shall not be subject to the husband or the control of his creditors, and that the policy shall be deemed a trust for the benefit of the parties interested, and Section 13 provides that a policy on the life of a woman for the benefit of her husband or children or either of them creates a trust in favor of the objects therein named, and the moneys payable on the policy are free from her debts while any object of the trust remains.

Policies in favor of the beneficiaries above referred to are protected against creditors, but they are entitled to premiums without interest when the same have been paid with intent to defraud them. In this Prov-

ince the preferred beneficiaries are limited to the wife, husband and children.

I. NEWFOUNDLAND.—Until the present year there has been no act in this colony affecting the subject of life insurance, save as to the provision for establishing an agency in the colony.

The present Act, known as the Insurance Act, and which has just come into force, is modelled largely, like the other provinces, on that of Ontario. Preferred beneficiaries constitute a class which includes the husband, wife, children, grandchildren and mother of the insured. Section 12 provides that

> "When the insurance money becomes due and payable it shall be paid within the time prescribed by Section 9 of this Act, and according to the terms of the policy, or of any declaration or instrument as aforesaid, and shall in the case of preferred beneficiaries be free from the claims of any creditors of the assured, except as in Section 10 provided."

There is no provision in Section 10 which alters the above enactment so as to give any relief to creditors.

Section 17, Sub-section 1, provides that where a person effects insurance on his or her life for the benefit of any of the class of preferred beneficiaries, or having effected by any instrument, appropriates the policy in their favor the result is a trust is created in favor of such beneficiary according to the intent so expressed or declared, and so long as any object of the trust remains the money payable under the contract is not subject to the control of the insured or of his or her creditors.

J. THE UNITED STATES.—In considering existing legislation on the subject in the United States we have to bear in mind that each State controls its own legislation on this subject, and where no legislation upon the subject has been passed we have to consider how far the common law of England is the basis of the laws of the country, or what laws form the basis of contracts.

In the New England States the English common law, so far as the same was recognized as being in force by the colonial parliaments, is in force.

In those States, where there has been no legislation, the policy, if written payable to a beneficiary, the interest of the beneficiary, if not affected in any way by the terms of the contract or privileges given thereby to the insured to change the beneficiary at his will, is absolute and the insured has no power to withdraw his interest or in any way interfere therewith. This appears to be the law in Washington, and in such cases where the wife and children are nominated the insurance moneys would be unattachable in any way or affected by the claims of creditors.

This principle is largely due to the old English Statute of Elizabeth, under which a chose in action could not be obtained by a creditor from his debtor, and a voluntary settlement of such could not be set aside as fraudulent against them. But subsequently this law in England was amended so as to compel a policy of insurance on the debtor's life to be delivered up with the rest of his estate for the benefit of his creditors. In the State of Washington, therefore, the question depends upon the common law rights of the parties in each case, and on the statutes affecting bankrupt estates. The case of the Central Bank vs. Hume, 128 U. S. 195, decided that an insolvent debtor could insure his life for the benefit of his wife and that the same could not be reached by his creditors after his death.

A large number of the States recognize the rights of the wife and recent legislation increases her powers to retain insurance upon the life of her insolvent husband notwithstanding the claims of creditors, except in very special cases as provided by statute. A distinction has been drawn between the case where a policy originally is taken out in the name of the wife, and the case where she subsequent to its issue becomes entitled to interests therein, as by assignment.

In Tennessee as early as 1846 life insurance effected by a husband on his own life inured to the benefit of the widow and next of kin, to be distributed as personal property, free from the claims of creditors. Code of Tennessee 1884, Section 3135.

The Florida statute gives similar powers, and provides that whenever any person shall die in this State leaving insurance on his life the said insurance shall inure exclusively to the benefit of his child or children, husband or wife in equal portions, and to any other person or persons for whose use and benefit said insurance is declared in the policy, and the proceeds thereof shall in no case be liable to attachment, garnishment or any legal process by any creditor or creditors of the person whose life was insured, unless said policy declares that said policy was effected for the benefit of such creditor or creditors; and under this section it has been decided that payment of premiums by one insolvent is not fraudulent. Section 2347 RS Florida.

In Iowa a policy taken out in the name of the wife or assigned to her is hers free from her husband's creditors.

In Pennsylvania and Maryland a wife or child of any dependant relative is similarly protected if the policy was originally so made payable or was bona fide assigned.

In Georgia, North Carolina, Michigan and New Jersey the wife and children receive the profits of policies made expressly in their favor, but no provision is made for the protection of assignments to them. See Savings Bank vs. McLean.

In the State of Michigan it is provided

> "It shall be lawful for any husband to insure his life for the benefit of his wife, and for any father to insure his life for the benefit of his children, or of any one or more of them; and in case that any money shall be payable under the insurance, the same shall be payable to the person or persons for whose benefit the insurance was procured, his, her or their representatives or assigns, for his, her, or their own use and benefit, free from all claims of the representatives of such husband or father, or of any of his creditors; and any married woman, either in her own name or in the name of any third party as her trustee, may cause to be insured the life of her husband, or of any other person, for any definite period, or for the term of life, and the moneys that may become payable on the contract of insurance shall be payable to her, her representatives or assigns, free from the claims of the representatives of the husband, or of such other person insured, or of any of his creditors; and in any contract of insurance, it shall be lawful to provide that on the decease of the person for whose benefit it is obtained before the sum insured shall be payable, the benefit thereof shall accrue to any other person or persons designated; and such other person or persons shall, on the happening of such contingency become the lawful owner or owners of the policy of

insurance and entitled to enforce the same to the full extent of its terms, notwithstanding he, she, or they may not at the time have any such insurable interest as would have enabled him, her or them to obtain a new insurance." Howell's Statutes Cap. 131, Sec. 23.

In all the foregoing States by conforming to the statute law an insolvent debtor may secure insurance for the benefit of his wife to any amount. In other States the amount is limited by limiting the annual premiums set apart for that purpose.

Any policy taken out in the name of the wife, or wife and children, is held free from all claims of the creditors of her husband, provided that the annual premium does not exceed $500 in Alabama, California, Kansas and New York; $300 in Arkansas, Kentucky, Missouri and Vermont; $150 in Delaware, Maine, Ohio and Wisconsin; and in such cases it is usually provided by statute that the amount equal to the premiums so paid in excess of said sum with interest thereon shall inure to the benefit of the creditors.

In Mississippi and Rhode Island the amount of premiums which can be paid is not restricted, but the face of the policy must not exceed $10,000.

In Illinois, Connecticut, Maine, Massachusetts and New Hampshire any policy taken out by the wife belongs solely to her, but if the premiums, or any of them, have been paid by the husband with intent to defraud his creditors an amount equal to the premiums, with interest, paid by the husband may be collected by the creditors unless their right is barred by limitation.

Under the laws of New York 1896, Cap. 272, Sec. 22, a married woman may in her own name, or in the name of a third person, with his consent, or as her trustee cause the life of her husband to be insured, and where she survives the period or term she is entitled to receive such money payable by the terms of the policy as her separate estate and free from any claims of a creditor or representative of her husband, except that where the permium actually paid annually out of her husband's property exceeds $500 that portion of the insurance money which is purchased by excess of premium above $500 is primarily liable for the husbands debts. The policy may provide that if she dies before it becomes due and without disposing of it that it may be paid to her husband or to his, her or their children, and it may designate a trustee for such child or children to receive and manage such moneys until such child or children attains full age. She may dispose of the policy by will or assignment to take effect on death, if she die leaving no descendants surviving.

The tendency of modern legislation and decisions is to protect the interest of the wives and children when they are nominated as beneficiaries thereunder, in cases where the premiums payable are not excessive and apparently within the means and the capacity of the husband to meet, and in Ontario where this is done it would be difficult for a creditor to obtain relief, unless he was in a position to show insuring with intent to defraud.

It has been the practice among some companies to allow the insured to change beneficiary at any time by giving written notice to the company and returning the policy to its office to have the change desired endorsed thereupon. In the case where a policy is issued to the wife as a beneficiary it becomes a question how far this privilege may leave the policy open to be attacked by a creditor, in view of the privilege given to the

insured to change the beneficiary at any time, it being the rule in the case of bankruptcy that all property within the controlling power of the insured may be utilized to the benefit of his estate. It seems under the English law that such a policy would be subject to the claims of creditors as the gift to the wife or her appointment is not absolute. The gift must be complete and the donor must not have reserved to himself locus poenitentiæ. A power of revocation may always be reserved by a person making a settlement, but in the event of a subsequent bankruptcy it would not secure the wife her interest in the policy, and it appears that such a power in the policy-holder to change the beneficiary which he at any time may exercise, practically leaves in him the controlling interest in the contract, and would be exercisable by his trustee in bankruptcy for the benefit of his creditors. Is it not, therefore, advisable in all such cases where the object is primarily for family insurance that this power to change the beneficiary should be avoided?

The position in Ontario is very well expressed in an English case cited by a judge in connection with an Ontario case in which creditors set up claim to the proceeds of a policy:

> "It is not necessary that the declaration of trust should be in terms explicit, but what I take the law to require is that the donor should have evinced by acts (or words) which admit of no other interpretation that he himself had ceased to be, and that some other person had become the beneficial owner of the subject of the gift or transfer, and that such legal right to it, if any, which he retained was held by him in trust for the donee."
>
> Bacon B. C. Heartley vs. Nicholson, L.R. 19, E.Q. 232.

And in our own courts it has been decided that the trust intended must be irrevocable before the court will enforce a pure act of volition against the donor or his representative.

The English law gives relief to creditors in cases where policies are effected and the premiums paid with the intent to defraud his creditors, and they are entitled under 45 and 46 Victoria, Cap. 75, Sec. 11, to receive out of the moneys payable under the policy an amount equal to the premiums so paid.

RÉSUMÉ.

LOIS EN VIGUEUR POUR LA PROTECTION DES FEMMES ET DES ENFANTS BENEFICIAIRES CONTRE LES PRETENTIONS DES CREANCIERS.

PAR L. GOLDMAN.

1. C'est la législation Canadienne qui est traitée spécialement dans ce mémoire, et la législation des États-Unis n'est touchée qu'incidemment.

Le Domaine de Canada est divisé en sept provinces et un territoire, dans la plupart desquelles il y a des règles à l'égard de l'assurance sur la vie.

a. *La Province d'Ontario.*

La première ordonnance émise pour cette province était pour garantir aux femmes et enfants le bénéfice d'assurance sur la vie de leurs maris et de leurs parents. Publiée le 18 Septembre 1865 la loi accordait à chacun la liberté d'assurer sa vie en faveur de sa femme et de ses enfants (en tout ou en partie) et de faire la répartition de la somme assurée,—en l'exemptant des prétentions des

créanciers en cas de la mort de l'assuré; il n'y avait pas droit de demande des créanciers de la somme assurée à la femme ou aux enfants du défunt. Graduellement cette classe de bénéficiaires a été étendue à la mère, les petits-fils et le mari de la personne défunte, ceux qui forment à present,—la femme et les enfants inclus,—la classe des bénéficiaires préférés.

Une police payable à un bénéficiaire préféré devient exempte des demandes des créanciers du défunt, à l'exception de celle faite dans l'intention de faire tort aux créanciers. Dans ce cas les créanciers ont le droit de demander une somme équivalente aux primes payées à cette intention.

L'assuré a le droit de nommer dans le contrat original ou par une disposition postérieure, conformément à la loi, quelqu'un de la classe préférée comme bénéficiaire; ou de changer son bénéficiaire de temps à autre,—supposé qu'il se maintient dans la classe des bénéficiaires préférés. Le statut donne l'ordre de former un état de confiance (Trust) en faveur de ce bénéficiaire, et que la somme assurée n'est pas sujette au contrôle de l'assuré ou de ses créanciers, et qu'elle ne forme pas de partie de son bien.

Les autres bénéficiaires sont les bénéficiaires ordinaires. La loi d'Ontario permet à l'assuré de révoquer l'intérêt d'un bénéficiaire ordinaire, supposé qu'il n'est pas bénéficiaire de valeur, c'est à dire, la compagnie d'assurance n'a pas été avertie des intérêts du bénéficiaire.

Il apparaît que le droit de redressement du créancier depend dans la province d'Ontario de l'évidence d'une action frauduleuse et la possibilité au créancier de le prouver. Il faut qu'il soit évident que les primes ont été payées dans l'intention de faire tort aux créanciers. Les décisions des tribunaux de justice d'Ontario ont la tendance à protéger autant qu'il est possible les droits des bénéficiaires préférés.

S'il y a plusieurs bénéficiaires et que l'un ou plusieurs se meurent, l'intérêt du défunt,—qui ne s'est pas accru auparavant dans l'intérêt des bénéficiaires préférés survivants, mais qui a fait retour au bien de l'assuré,—s'accroît aujourd'hui en vertu d'une ordonnance additionnelle dans l'intérêt des bénéficiares préférés survivants.

En cas de mort de tous les bénéficiaires préférés, et faute d'autres nominations de l'assuré, le bénéfice est transféré aux enfants de l'assuré et ce n'est qu'au défaut des enfants qu'il retourne aux héritiers de l'assuré.

Les tribunaux ont décidé qu'il faut prouver,—pour empêcher le payement au bénéficiaire ordinaire,—que l'assuré n'a pas été dans l'état de faire des dispositions volontaires à l'époque que la police a été faite ainsi payable. La cession de toute police faite dans la province d'Ontario et qu'on demande à être rejetée en faveur des créanciers, doit être examinée en vertu de la loi d'Ontario. Si le contrat ne dit rien au sujet des droits et de l'état du bénéficiaire ou de la loi règlant ces droits; ou si les parties ont convenu d'être réglées par quelque loi étrangère—les tribunaux ont reconnu ces stipulations.

Voici l'interprétation de la loi valide d'Ontario par une décision de l'autre jour: dès qu'un bénéficiaire préféré a été nommé comme bénéficiaire d'une manière légale, son intérêt est absolu (excepté le droit de changer l'intérêt parmi tous ceux de la même classe) malgré les réserves ou conditions dans la police même ou dans le document qui a nommé un tel bénéficiaire; conséquemment il n'est pas permis dans la province d'Ontario de révoquer l'intérêt total de cette classe de bénéficiaires. Cette décision n'a pas atteint le tribunal suprême d'appels, et jusqu'à ce que cela se fasse, l'interprétation de la loi est dans le doute.

b. *La Province de Québec.*

Les règles à l'égard de l'assurance sur la vie sont trouvées dans le Statut Revisé de Québec 1888.

(1) En vertu de la loi le mari a le droit de s'assurer ou de tenir une police sur sa vie en faveur de sa femme ou de sa femme et de leurs enfants, ou de sa femme et de ses enfants (de la femme ou du mari), ou de sa femme et de quelqu'un ou de quelques-uns de leurs enfants (de la femme ou du mari).

(2) Le père et la mère ont le droit de s'assurer;—ou le père de tenir une police sur la vie de sa femme;—ou la mère de tenir une police sur la vie de son mari,—en faveur d'un ou de leurs enfants ou quelques-uns des enfants. De telles polices sont exemptes de la saisie pour dettes de l'assuré ou des bénéficiaires. La règle à l'égard spécial des créanciers est Sect. 5606 qui dit:

> "S'il est prouvé que des primes ont été payées au temps de l'insolvabilité de l'assuré en fraude des créanciers (in fraudem creditorum), de tels créanciers ont le droit de récupérer cette somme et de recevoir la somme payée frauduleusement de la somme assurée."

c. *La Province de la Nouvelle Écosse.*

La législation de cette province à l'égard de ce sujet est de fait la même que celle d'Ontario. Les bénéficiaires préférés sont les mêmes que ceux d'Ontario, et

un état de confiance (Trust) est formé en leur faveur, si de tels bénéficiaires sont nommés dans la police ou par nomination subséquente.

d. *La Province du Nouveau Brunswick.*

Si une police est faite en faveur de la femme ou des enfants, leur intérêt est considéré comme un état de confiance et exempt des prétentions des créanciers; mais si la police a été faite ou si les primes ont été payés en prévision de frauder des créanciers, il y a le même recours que dans la province d'Ontario.

e. *Les Isles du Prince Édouard.*

La somme assurée en faveur de la femme et des enfants est payée aux bénéficiaires en vertu de la police, et elle est exempte des prétentions des créanciers.

f. *La Province de Manitoba.*

L'assurance sur la vie d'un mari en faveur de sa femme ou de ses enfants crée un état de confiance (Trust). La classe des bénéficiaires préférés se compose du mari, de la femme et des enfants (aussi des beaux-fils ou belles-filles), et les polices payables à quelqu'un de cette classe sont exemptes des dettes de l'assuré ou des bénéficiaires, et insaisissables. L'assuré a le droit absolu de révoquer l'intérêt d'un bénéficiaire en se transférant la police à lui-même. Manitoba est la seule province du Canada où ce privilège extensif est accordé à l'assuré.

g. *Le Territoire du Nord-Ouest.*

Les bénéficiaires préférés comprennent la femme et les enfants, et les polices en leur faveur sont protégées des prétentions des créanciers. Les créanciers ont le droit de recouvrer les primes payées dans une intention frauduleuse.

h. *La Province de la Colombie Bretonne.*

Les polices en faveur des bénéficiaires préférés,—c'est à dire de la femme, du mari et des enfants,—sont exemptes des prétentions des créanciers de l'assuré; un état de confiance (Trust) est créé pour ce qui a été reporté sur le bénéficiaire. Mais si la police a été constituée à l'intention de décevoir les créanciers, les derniers ont le droit de recouvrer les primes payées à cette intention (sans intérêt).

i. *La Terre-Neuve.*

Cette année la loi bien modélée sur celle d'Ontario a été publiée. Les mêmes bénéficiaires préférés, desquels si l'un ou l'autre est nommé dans la police ou subséquemment la somme assurée est exempte des prétentions des créanciers de l'assuré.

2. *Les États-Unis.*

Dans l'État de Washington la question est réglée en vertu du droit commun des parties du cas, et de la loi de la banqueroute. Le changement du bénéficiaire par l'assuré ne peut se faire que s'il est réservé au contrat, et la police émise devient la propriété absolue du bénéficiaire.

Dans le Tennessee la police d'assurance sur la vie du mari en faveur de la femme et ses enfants est exempte des prétentions des créanciers. Dans les Florides la somme assurée est transférée (en parties égales) à la femme, au mari, à un enfant ou aux enfants, exempte des prétentions des créanciers; et les tribunaux ont décidé que le payement des primes par un homme insolvable n'est pas frauduleux.

Dans l'état d'Iowa la police en faveur de ou cédée à la femme est exempte des prétentions des créanciers du mari. La même loi est faite en Pennsylvania et dans le Maryland, si la femme ou l'enfant, ou l'esclave est le bénéficiaire et la police a été constituée originalement en faveur de ces bénéficiaires. Dans la Géorgie, la Caroline du Nord et dans l'état du New Jersey la femme et les enfants reçoivent le produit d'une police constituée spécialement en leur faveur.

Dans les états nommés ci-dessus le débiteur insolvable a le droit de l'assurance illimitée sur sa vie en faveur de sa femme en conformité de la loi. Dans les états d'Alabama, Californie, Kansas et Newyork, si la prime annuelle est au-dessous de $500. Mais toutes les polices en faveur de la femme ou des enfants sont exemptes des prétentions des créanciers.

Dans les états d'Arkansas, Kentucky, Missouri et Vermont le maximum de la prime annuelle est $300; en Delaware, Maine, Ohio and Wisconsin $150. Dans les états nommés il est stipulé que l'excès de la prime sur cette somme, avec l'intérêt, revienne aux créanciers dans le cas d'insolvabilité.

Le Mississippi et Rhode Island ont restreint la police sur $10,000.

Dans l'Illinois, le Connecticut, le Maine, le Massachusetts et New Hampshire la police est la propriété de la femme si elle est constituée en sa faveur; mais les créanciers ont le droit de recouvrer les primes payées dans l'intention de les tromper.

Dans l'État de Newyork la limite est $500, et en cas d'excès de cette limite les primes étant payées du bien du mari et la somme assurée couverte par cet excès de la limite de $500 n'est point exempte des dettes de l'assuré.

KURZE NOTIZ.

DIE GESETZE ZUM SCHUTZ VON FRAUEN UND KINDERN ALS BENEFIZIATEN VON LEBENSVERSICHERUNGSPOLICEN GEGEN DIE ANGRIFFE VON GLÄUBIGERN.

Von L. Goldmann.

1.—Bezüglich dieses Themas ist hauptsächlich auf Canada Bezug genommen; nur gelegentlich sind auch die Vereinigten Staaten in Betracht gezogen.

Canada zerfällt in sieben Provinzen und ein Territorium, wie nachstehend aufgeführt, und in allen derselben gibt es Gesetze über Lebensversicherung.

(a) *Die Provinz Ontario.*

Das erste Gesetz nach dieser Richtung hin handelt von dem Schutz von Frauen und Kindern als Benefiziaten einer Lebensversicherungspolice ihrer Gatten oder Väter. Erlassen am 18. September 1865, garantiert dieses Gesetz jedermann das Recht, sein Leben zu Gunsten seiner Frau und Kinder,—aller oder nur eines Teils der letzteren,—zu versichern und die Versicherungsprämien zu bezahlen,—ohne dass die Gläubiger des Versicherten nach dessen Tode einen Anspruch darauf machen können. Allmählich wurde diese privilegierte Klasse von Benefiziaten auf die Mutter, die Enkel und den Gatten der versicherten Person ausgedehnt, und diese,—einschliesslich Frau und Kinder,—bilden die Klasse der sogenannten privilegierten Benefiziaten.

Eine Police zu Gunsten der genannten Personen kann von keinem Gläubiger mit Beschlag belegt werden,—ausser sie wäre mit der Absicht, die Gläubiger zu betrügen, herausgenommen worden, welchenfalls die Gläubiger von der Versicherungssumme denjenigen Teil erhalten sollen, der den betrügerischer Weise bezahlten Prämien gleichkommt.

Der Versicherungsnehmer kann beim Abschluss des Versicherungsvertrages oder später,—den gesetzlichen Bestimmungen gemäss,—irgend eine der genannten Personen als Benefiziat ernennen, aber auch an Stelle einer bestellten Person eine andere ernennen (immer aber aus dieser privilegierten Klasse),—und es bildet dann die Versicherungssumme eine gesonderte Masse, welche weder der Kontrolle des Versicherten untersteht noch zu seinem Vermögen gehört, und daher auch von seinen Gläubigern nicht in Anspruch genommen werden kann.

Die bisher nicht aufgeführten Benefiziaten nennt man nicht-privilegierte Benefiziaten. Hier erlaubt das Gesetz von Ontario dem Versicherten den Widerruf der Bestellung als Benefiziat, solange derselbe nicht offiziell von der Versicherungsgesellschaft als solcher eingetragen worden ist.

Der Anspruch eines Gläubigers auf Zahlung beruht daher in Ontario auf dem Beweis des Betrugs. Dieser Beweis muss ausdrücklich dartun, dass die Prämien nur mit der Absicht, die Gläubiger zu benachteiligen, bezahlt worden sind. Das Gesetz neigt zu dem möglichst ausgedehnten Schutz der Interessen der privilegierten Benefiziaten.

Wenn von mehreren Benefiziaten für dieselbe Versicherung der eine oder der andere stirbt, so wächst dessen Anteil,—der früher in das Vermögen des Versicherungsnehmers zurückfiel und natürlich ein Pfandobject für seine Gläubiger wurde,—jetzt den Anteilen der übrigen privilegierten Benefiziaten pro rata zu. Sterben alle privilegierten Benefiziaten, so geht der Anspruch auf die Versicherungssumme mangels anderer Bestimmungen auf die Kinder des Versicherten über, und nur falls keine Kinder vorhanden sind, gehört er zur Hinterlassenschaft des Versicherten.

Eine Bestellung zum privilegierten Benefiziat kann gerichtlich nur dann angefochten werden, wenn der Beweis erbracht wird, dass der Versicherungsnehmer zur Zeit als er die Bestellung machte, nicht fähig war, über sein Vermögen zu verfügen. Die Gesetze von Ontario sind hierfür allein massgebend, wenn die Bestellung in Ontario erfolgt war. Im Versicherungsvertrag wird des Gerichtsstandes des Benefiziaten keiner Erwähnung getan, allein wenn die Parteien sich über die zur Beurteilung des Falles gelten sollenden Gesetze dahin geeinigt hatten, dass dies ein fremdes Gesetz sein solle, so haben die Gerichte die Giltigkeit eines derartigen Übereinkommens anerkannt.

Eine kürzlich ergangene gerichtliche Entscheidung legt das zur Stunde in Ontario geltende Gesetz dahin aus, dass, sobald einmal die Bestellung eines privilegierten Benefiziaten erfolgt ist, das Recht desselben,—abgesehen von der gesetzlich gestatteten Abänderung der Höhe desselben zwischen mehreren Benefiziaten derselben Klasse,—bestehen bleibt, ungeachtet aller Vorbehalte oder gegenteiligen Verabredungen in der Police oder dem späteren Bestallungsdokument.

so dass es in Ontario nicht gestattet ist, die Zuwendung an einen solchen Benefiziaten ganz und gar zu widerrufen. Diese Entscheidung hat aber die letzte Instanz noch nicht passiert, so dass bis jetzt noch die Auslegung der betreffenden gesetzlichen Bestimmungen zweifelhaft bleiben muss.

(b) *Die Provinz Quebec.*

Die gesetzlichen Bestimmungen in Bezug auf Lebensversicherung befinden sich in den „Revidierten Statuten" von 1888. (1) Jedermann kann sein Leben versichern zu Gunsten seiner Frau, oder seiner Frau und deren Kinder, oder seiner Frau und der beiderseitigen Kinder, oder seiner Frau und eines oder mehrerer ihrer Kinder, u. s. w. (2) Ferner, jeder Vater oder jede Mutter kann (a) ihr oder sein Leben versichern, und (b) zwar zu Gunsten ihrer Kinder, oder eins oder mehrerer derselben. Solche Versicherungspolicen unterliegen nicht der Pfändung durch Gläubiger, weder der des Versicherungsnehmers noch der der Benefiziaten selbst. Das Gesetz in Sect. 5606 bestimmt ausdrücklich, „Dass alle von einem zahlungsunfähigen Versicherungsnehmer in der Absicht seine Gläubiger zu benachteiligen gemachten Prämienzahlungen den Gläubigern aus der Versicherungssumme zu ersetzen sind."

(c) *Neuschottland.*

Hier gelten faktisch dieselben Gesetze wie in Ontario, sowohl bezüglich der Personen, welche die privilegierten Benefiziaten werden können, als bezüglich der Bildung einer gesonderten Masse,—und der Bestellung der Benefiziaten in der Versicherungspolice oder nachträglich durch besondere Stipulation.

(d) *Neubraunschweig.*

Wenn die Police zu Gunsten einer Ehefrau oder der Kinder lautet, so bildet die Versicherungssumme eine gesonderte Masse, die den Ansprüchen der Gläubiger entzogen ist,—ausser wenn die Police in der Absicht herausgenommen worden war, die Gläubiger zu benachteiligen, und in derselben Absicht die Zahlung der Prämien erfolgt war.

(e) *Prinz-Eduard-Inseln.*

Bei Policen zu Gunsten der Ehefrau oder der Kinder wird diesen die Versicherungssumme ausbezahlt, und dieselbe unterliegt keinerlei Ansprüchen der Gläubiger.

(f) *Die Provinz Manitoba.*

Die in der Police ausdrücklich für die Ehefrau oder die Kinder bestimmte Versicherungssumme bildet eine besondere Masse. Zur Klasse der privilegierten Benefiziaten gehören der Ehemann, die Ehefrau, die Kinder und die Stiefkinder, und die Versicherungen zu ihren Gunsten unterliegen nicht der Pfändung der Gläubiger, weder der des Versicherungsnehmers, noch der der Benefiziaten. Der Versicherte kann unter allen Umständen die Bestallung als Benefiziat widerrufen und die Police so zu einem Teil seiner Hinterlassenschaft machen. Manitoba ist die einzige Provinz in Canada, welche dem Versicherten dieses weitgehende Recht einräumt.

(g) *Territorium des Nordwestens.*

Die Klasse der privilegierten Benefiziaten umschliesst hier auch die Ehefrau und die Kinder, und Policen zu deren Gunsten sind gegen Ansprüche der Gläubiger geschützt. Die in der Absicht die Gläubiger zu benachteiligen gemachten Prämienzahlungen können die Gläubiger aus der Versicherungssumme ersetzt verlangen.

(h) *Britisch Kolumbien.*

Die Policen zu Gunsten der privilegierten Benefiziaten, welche die Ehefrau, den Ehemann und die Kinder umfassen, sind keinerlei Ansprüchen der Gläubiger unterworfen und bilden eine gesonderte Masse. Wird eine solche Police in der Absicht herausgenommen, die Gläubiger zu benachteiligen, so sind diese berechtigt, den Ersatz der in dieser Absicht gezahlten Prämien aus der Masse zu verlangen.

(i) *Neufundland.*

Erst im laufenden Jahr wurde für diese Provinz ein hauptsächlich dem Ontario'schen nachgebildetes Gesetz erlassen. Dieselben bevorzugten Benefiziaten, und die Befreiung der Versicherungssumme,—die Bestellung mag in der Police oder später erfolgt sein,—von allen Ansprüchen der Gläubiger des Versicherungsnehmers.

2.—*Die Vereinigten Staaten.*

In Washington wird der Fall nach dem für die Parteien geltenden gemeinen und Partikularrecht, sowie nach dem Gesetz über Bankerott beurteilt. Der Versicherte darf den Benefiziaten nur wechseln, wenn er sich das in der Police ausdrücklich vorbehalten hat, und die Police wird unanfechtbares Eigentum des Benefiziaten.

In Tennessee ist eine Police des Ehemanns zu Gunsten seiner Witwe und nächsten Leibeserben den Ansprüchen der Gläubiger entzogen. In Florida ist

die Versicherungssumme den Ansprüchen der Gläubiger nicht unterworfen, wenn sie zu Gunsten der Ehefrau, des Ehemannes, des oder der Kinder lautet; und es ist gerichtlich entschieden worden, dass die Prämienzahlung seitens eines zahlungsfähigen Versicherungsnehmers nicht als in fraudem creditorum geschehen zu betrachten sei.

In Iowa ist eine Police,—ursprünglich oder nachträglich,—zu Gunsten der Ehefrau den Ansprüchen der Gläubiger nicht unterworfen. Dieselbe Bestimmung gilt in Pennsylvania und Maryland, wenn die Police von Anbeginn an zu Gunsten der Ehefrau, der Kinder, oder eines Sklaven ausgestellt worden ist. In Georgia, Nord Carolina, Michigan und New Jersey ist die in der Police ausdrücklich für die Ehefrau oder die Kinder bestimmte Versicherungssumme frei von solchen Ansprüchen. Auch kann in den genannten Staaten ein zahlungsunfähiger Mann gesetzlich eine derartige Lebensversicherungspolice herausnehmen, und zwar in beliebiger Höhe. In Alabama, California, Kansas und New York darf diesenfalls die Jahresprämie $500 nicht übersteigen; doch ist eine Police zu Gunsten der Ehefrau oder der Kinder der Pfändung seitens der Gläubiger nicht unterworfen. In Arkansas, Kentucky, Missouri und Vermont darf die Jahresprämie $300, in Delaware, Maine, Ohio und Wisconsin $150 nicht übersteigen; auch ist dort gewöhnlich Bestimmung dahin getroffen, dass die höheren Prämien mit dem Ueberschuss über das gesetzliche Maximum, im Fall der Zahlungsunfähigkeit des Versicherungsnehmers, den Gläubigern (mit Zinsen) zu ersetzen sind.

In Mississippi und Rhode Island ist die Höhe der Versicherungssumme auf $10,000 beschränkt.

In Illinois, Connecticut, Maine, Massachusetts und New Hampshire gehört die Police allein der Ehefrau, wenn sie zu ihren Gunsten herausgenommen worden ist; aber die Gläubiger haben Anspruch auf Erstattung derjenigen Prämien, welche mit der Absicht sie zu benachteiligen bezahlt worden sind.

In New York ist der Höchstbetrag der Jahresprämie $500, und alles was aus dem Vermögen des sein Leben zu Gunsten seiner Ehefrau versichernden Ehemanns mehr an Prämien gezahlt worden ist, macht die durch die höhere Prämie erzielte Versicherungssumme zu einer den Ansprüchen der Gläubiger unterworfenen.

NOTE SUR LES DISPOSITIONS DE LA LÉGISLATION FRANÇAISE RELATIVES À L'ASSURANCE SUR LA VIE AU PROFIT DE LA FEMME ET DES ENFANTS.

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La loi française ne contient pas de dispositions spéciales de droit privé relatives aux assurances sur la vie; le Code civil les ignore, et les lois postérieures ne touchent que l'organisation des Sociétés d'assurances, ou les impôts et les droits de timbre ou de mutation qui frappent les polices, les primes ou les capitaux assurés en cas de décès. En ce qui concerne le contrat d'assurance sur la vie pris en lui-même, la femme et les enfants du souscripteur se trouvent dans la même situation que les autres bénéficiaires, dont les droits reposent non pas sur le texte précis de la loi, mais sur l'interprétation et le développement que les auteurs et les tribunaux ont faits en faveur de l'assurance sur la vie des théories générales du droit. Le droit privé de l'assurance sur la vie a donc bénéficié d'une évolution coutumière; la pratique a pu ainsi faire son profit des besoins du public; les auteurs et la jurisprudence ont ensuite élaboré la théorie juridique du contrat d'assurance en général et des droits du bénéficiaire en particulier. On peut considérer aujourd'hui ce travail historique comme arrivé à un point de précision suffisant, pour permettre la codification en un texte de loi. Ce texte est actuellement en préparation; une commission a été formée pour le rédiger, il consacrera, croyons-nous, dans l'ensemble, l'état actuel des choses en ce qu'il a de plus favorable aux droits de la veuve et des enfants.

I. *Du bénéfice de l'assurance en général.*

La question de savoir si et jusqu'à quel point les créanciers du souscripteur d'une assurance (ou, pour parler d'une façon plus topique, de celui qui paie les primes d'une assurance) peuvent mettre la main sur le capital stipulé payable à un tiers, se rattache à la question de savoir si ce capital fait partie du patrimoine du souscripteur (ou du payeur des primes); on peut même dire que les deux questions n'en font qu'une. Il est en effet de principe (Code civil, art. 2092) que tous les biens présents et à venir du débiteur servent de gage général à toutes ses obligations; si l'on ajoute à cela que les biens d'une personne décédée ne passent à ses héritiers légitimes ou testamentaires que grevés de ses dettes, et que ces héritiers ou légataires, s'ils ne prennent pas les précautions prescrites par la loi, se trouvent tenus personnellement du passif successoral même au delà du montant de l'actif, on conçoit que la notion du patrimoine telle qu'on peut la déduire du Code civil semble être, *a priori*, celle d'un tout indivisible, qu'on pourrait donc définir le patrimoine d'une personne comme l'ensemble de son activité juridique, dans la mesure où elle est susceptible d'une évaluation pécuniaire, et dont la volonté ne pourrait rien distraire au préjudice des créanciers.

Un examen plus approfondi du régime des biens dans la famille conduirait cependant à atténuer cette formule. Sans entrer ici dans cet

examen, qui nous conduirait hors des limites de notre sujet, nous nous contenterons de constater que la théorie de l'assurance, telle qu'elle est aujourd'hui constituée en France, apporte à ces principes une importante limitation.

Différentes analyses ont été proposées du contrat d'assurance sur la vie au profit d'un tiers; toutes d'ailleurs ont ce trait commun de tendre à constituer le capital assuré en dehors du patrimoine de celui qui a souscrit l'assurance et payé les primes. La théorie qui a prévalu est celle de la stipulation pour autrui (Code civil, art. 1121) ; elle a pour conséquence de donner au bénéficiaire désigné dans la police un droit personnel et direct au capital assuré, pourvu que la désignation de ce bénéficiaire soit faite nominativement, ou tout au moins individuellement.

II. *Situation des créanciers à l'égard de l'assurance.*

Supposons donc la femme ou les enfants d'un souscripteur d'assurance individuellement désignés pour recueillir tout ou partie du capital assuré. Il résulte de ce que nous venons de dire que lorsqu'arrivera l'événement qui donne ouverture au paiement de l'assurance, la femme ou les enfants recevront de la Compagnie d'assurances la somme assurée en dehors de toute vocation à l'hérédité du souscripteur de la police, et sans que les créanciers de celui-ci puissent mettre la main sur ce capital.* Avant l'échéance de l'assurance, le droit des bénéficiaires existe au moins en puissance, par suite de leur désignation, mais, en principe, il n'est pas irrévocable. Le souscripteur peut le détruire, tant que le bénéficiaire n'a pas déclaré vouloir profiter de la stipulation faite à son profit, en d'autres termes, tant qu'il n'a pas accepté le bénéfice de la police. Le droit de révocation, demeuré aux mains du souscripteur, peut-il être appréhendé par ses créanciers? Cette question mérite d'être examinée, car si les créanciers du souscripteur pouvaient soit l'obliger à révoquer la stipulation faite au profit d'un bénéficiaire, soit opérer eux-mêmes cette révocation, il est clair que, dans les cas où ce serait possible, toute la théorie juridique sus-exposée demeurerait sans effet pratique. C'est pourquoi l'on considère que la révocation ne peut être faite par les créanciers.

En outre, la jurisprudence et les auteurs se sont trouvés amenés à une conception libérale des formes de l'acceptation et des circonstances où elle peut avoir lieu. Quant à la forme, l'acceptation est acquise par suite de tout fait, même implicite, dont on peut l'induire sans ambiguité. Quant aux circonstances, on admet sans contestation que le bénéficiaire peut l'effectuer en tout temps, même après l'échéance de l'assurance, même après l'ouverture de la faillite du souscripteur. Tant que l'acceptation n'est pas intervenue, le souscripteur peut user de sa police comme d'un moyen de crédit en la donnant en gage, mais sans que cela implique révocation de l'attribution bénéficiaire; elle se trouve seulement subordonnée aux droits du créancier gagiste.

Quelle que soit la situation de l'assurance, il est généralement admis que le rachat ne peut avoir lieu sans le concours du souscripteur de l'assurance, même failli : on considère en effet qu'en dehors de la valeur pécuniaire actuelle de l'assurance, elle représente pour celui qui l'a souscrite une valeur morale, et qu'il n'appartient pas à ses créanciers de le dé-

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* Les créanciers personnels du bénéficiaire pourront bien entendu faire entrer dans leur gage général le capital assuré, à moins qu'il ne soit insaisissable, ce qui peut avoir lieu dans certain cas et moyennant certaines conditions qu'il serait trop long d'exposer ici.

pouiller de cette dernière. C'est cet intérêt que le projet de loi fédérale suisse élaboré par le Dr. Rölli a voulu sauvegarder, tout en assurant aux créanciers la valeur pécuniaire de la police; ce projet dispose que le conjoint et les enfants du failli peuvent, avec le consentement de ce dernier, exiger que l'assurance leur soit cédée, moyennant versement à la faillite de la valeur de rachat. En ce cas, les bénéficiaires de l'assurance se trouveraient avoir à continuer le paiement des primes. Cette disposition nous paraît à la fois ingénieuse et éminemment utile. En droit français, une pareille combinaison, à défaut d'un texte précis, n'aurait rien d'obligatoire, bien entendu, mais en supposant même qu'elle fût acceptée amiablement par tous les intéressés, elle se heurterait peut-être à deux ordres de difficultés juridiques: ce seraient d'une part la prohibition des ventes entre époux, et d'autre part la question de savoir si le bénéficiaire désigné à titre gratuit puise dans cette qualité le droit de continuer le paiement des primes, au cas où le souscripteur de la police l'aurait arrêté.

Quelle est en effet la situation du bénéficiaire à l'égard de l'assureur? Il est muni d'un droit sur le bénéfice de l'assurance, lorsque ce bénéfice sera échu, mais l'assureur ne reçoit pas les primes de lui, et le souscripteur reste libre, même quand le bénéficiaire a accepté, de cesser le paiement des primes, de manière que le capital assuré se trouve réduit. L'assureur, qui n'a d'autre obligation envers le bénéficiaire que de lui verser le capital assuré, n'est pas obligé de recevoir les primes que lui offre le bénéficiaire. On peut même se demander s'il peut le faire bénévolement, car enfin, le souscripteur reste maître de l'assurance, sauf le respect des droits acquis au bénéficiaire; et s'il a, ou croit avoir, une cause légitime de diminuer, en ne payant plus les primes, l'émolument à recueillir par le bénéficiaire, il n'appartient pas à l'assureur d'aller à l'encontre de cette volonté. Il est cependant dur de refuser au bénéficiaire le droit de faire des sacrifices pour assurer son avenir; aussi pencherions-nous à admettre que l'assureur peut, sans toutefois y être forcé, recevoir des mains du bénéficiaire le montant des primes.

Il résulte de ce qui précède que les créanciers du souscripteur d'une assurance ne peuvent en somme pas mettre *de plano* la main sur le capital ou sur la valeur de rachat, lorsque l'assurance est souscrite au profit de la femme et des enfants nommément désignés, pourvu que les bénéficiaires prennent en temps utile les mesures propres à sauvegarder leurs droits. Mais il est des cas où les créanciers sont fondés à faire annuler en ce qui les concerne les conséquences d'un acte de leur débiteur, c'est-à-dire, en fait, dans le cas de faillite, et dans le cas de fraude. En ce qui concerne la faillite, nous faisons allusion à la période dite suspecte, pendant laquelle certains actes sont nuls ou annulables. Les principes de l'action paulienne sont que les créanciers sont admis à faire prononcer la nullité de toute libéralité faite par leur débiteur en fraude de leurs droits, à condition de prouver cette fraude, et cela, soit que le bénéficiaire de la libéralité ait été de bonne foi ou de mauvaise foi. Quel que soit le parti que l'on prenne sur la nature de l'assurance au profit d'une personne désignée, il n'est pas douteux que c'est une libéralité; par conséquent, si les créanciers du souscripteur prouvent que celui-ci a eu pour but de faire sortir de son patrimoine certaines sommes pour les faire échapper à ses créanciers, il en résultera la nullité non pas du contrat d'assurance en lui-même,* mais de l'attribution frauduleuse du bénéfice de ce contrat. Si donc une personne a souscrit une assurance libellée de telle manière

* La nullité du contrat d'assurance en lui-même ne pourrait être prononcée que s'il était prouvé que l'assureur a été complice de la fraude.

que le bénéfice en doive faire parti de sa succession, et que postérieurement il en ait modifié l'attribution au profit d'un tiers désigné, les créanciers pourront être admis à faire tomber cette attribution en prouvant la fraude. Pour un contrat souscrit originairement au profit d'un tiers désigné, il est plus difficile de concevoir une fraude lorsque les primes sont des primes viagères, car ou bien elles sont minimes, ou bien tout au moins elles sont prises sur les sommes que le souscripteur de la police aurait en tout cas dépensées pour vivre, et par conséquent qu'il n'a pas soustraites à ses créanciers par l'assurance, puisqu'elles leur auraient échappé en tous cas. Il en est autrement lorsque l'assurance est faite moyennant une prime unique, qui peut être considérable.

III. *Du régime matrimonial et du droit applicable aux successions dans leurs rapports avec l'assurance.*

Nous avons fait jusqu'ici abstraction du régime matrimonial sous lequel est marié le souscripteur d'une assurance au profit de sa femme; en France, le régime presque universellement adopté est le régime de la communauté. Sans exposer ici ce régime et ses différentes espèces, il est nécessaire de rappeler qu'il est caractérisé par la constitution de trois groupes de biens, réunis sous l'administration du mari: les biens propres du mari, les biens propres de la femme, les biens mis en communauté. Aucun de ces trois groupes ne peut être augmenté aux dépens des autres, et si par la force des choses il arrive que l'un d'eux ait tiré profit d'une dépense faite par l'un des autres, il doit l'indemniser de cette dépense. Il suit de là que si la femme touche comme bénéficiaire désignée une assurance dont les primes ont été payées par la communauté, il y a lieu de se demander si elle doit tenir compte à la communauté des primes que la communauté a payées pour elle; cela se rattache à notre sujet, car les créanciers de la communauté peuvent intervenir pour exiger cette récompense, si elle est due.

Les principes exposées plus haut ont pour conséquence que le capital assuré ne peut former la base de la récompense, puisqu'il appartient directement à la femme ou aux enfants bénéficiaires, sans avoir passé par le patrimoine du souscripteur de l'assurance, et par conséquent sans que ce patrimoine soit amoindri du montant de ce capital. Il en est autrement des primes qui ont été payées par la communauté, puisqu'en principe toute somme d'argent liquide appartient à la communauté, sauf compte à faire entre elle et l'un ou l'autre des époux. En principe strict, l'époux qui recueille un capital assuré est donc débiteur envers la communauté des primes payées par elle, de sorte que recueillant d'autre part, à la dissolution du mariage, la moitié de l'actif de la communauté, l'époux survivant profitera d'un émolument net égal à l'excès du capital assuré sur la moitié des primes payées. Mais ce principe strict de la récompense des primes n'est appliqué ni par la doctrine, ni par la jurisprudence. On fait intervenir cette considération, que le principe de la récompense est d'éviter un appauvrissement de la communauté; que par conséquent les sommes employées sans appauvrir la communauté ne font pas logiquement l'objet d'une récompense, et qu'en particulier des primes d'assurance (dont au surplus l'objet est d'assurer l'avenir de la famille, et par conséquent d'acquitter une charge au moins morale de la communauté) n'appauvrissent pas la communauté, si leur importance permet de les considérer comme une dépense courante qui aurait été faite pour un autre objet, si elle ne l'avait été pour l'assurance; le résumé le plus

net qu'on puisse donner sur ce point de la jurisprudence courante est que la récompense des primes aura lieu suivant les circonstances, et les circonstances décisives seront l'intention du souscripteur et la valeur relative des primes comparées aux revenus de la communauté.* Les mêmes considérations s'appliquent, en ce qui concerne les enfants, à la solution de la question du rapport successoral et de la réduction. On sait qu'en droit français un père ne peut disposer de ses biens que dans une certaine mesure, dite quotité disponible, le surplus ne pouvant être retiré à ses enfants, dont il constitue la « réserve.» D'autre part, le partage entre les enfants doit être égal, de sorte qu'à moins d'une disposition contraire expresse dans l'acte constitutif d'une libéralité faite par un père à l'un de ses enfants, cette libéralité doit être précomptée sur sa part dans la succession. De là la nécessité du rapport successoral pour sauvegarder le partage égal, et de la réduction pour sauvegarder la réserve. Au rapport et à la réduction s'appliquent, *mutatis mutandis,* ce que nous avons dit au sujet de la récompense en matière de communauté.

Il est important de remarquer que l'intangibilité par les créanciers du souscripteur du capital assuré au profit de la femme cesse d'exister si la femme se trouve être personnellement débitrice des mêmes créanciers. Le cas se présente assez fréquemment, attendu qu'en fait il est usité de faire intervenir la femme aux actes par lesquels le mari se reconnaît débiteur, pour s'obliger elle-même, au moins comme caution.

IV. *De la forme de la désignation du bénéficiaire.*

Nous avons raisonné jusqu'ici en supposant la femme et les enfants bénéficiaires désignés d'une assurance; il nous reste à ajouter quelques mots sur les termes dans lesquels cette désignation doit avoir lieu pour satisfaire aux exigences de la théorie admise sur l'attribution propre et spéciale du bénéfice. En ce qui concerne la femme, il est hors de doute qu'une police rédigée au profit de la femme remplit les conditions nécessaires; en cas de second mariage, un simple rapprochement de dates suffit pour constater si la police a été souscrite au cours du premier ou du second mariage, et si par suite l'épouse survivante est bien la bénéficiaire désignée. Quant aux enfants, la question se pose de savoir s'ils peuvent être considérés comme bénéficiaires individuellement désignés lorsque la police ne porte pas le nom de chacun d'eux. A l'origine, certains tribunaux admirent que les expressions les plus générales, enfants, enfants nés ou à naître, étaient suffisantes pour conférer le droit propre que nous avons analysé plus haut aux enfants existant au jour du décès du souscripteur. Cette solution est commode, en ce sens qu'elle permettrait à un père de rédiger une fois pour toutes sa police, sans avoir à la modifier par avenant lorsqu'un nouvel enfant vient à naître. Elle présente réciproquement un inconvénient: lorsqu'un des enfants vient à décéder, laissant lui-même des enfants, ces enfants prennent-ils le lieu et place de leur père pour recueillir sa part dans le bénéfice de l'assurance? Si l'on interprète la volonté probable du souscripteur de l'assurance, on considérera d'une part qu'il n'a probablement pas voulu frustrer ses petits enfants de la part de leur père; et d'autre part, comme

* Il se produit assez fréquemment qu'une femme souscrive elle-même à son propre profit une assurance sur la tête de son mari, et que les primes de cette assurance soient payées par la communauté. Il n'y a pas de conclusion différente à tirer en ce cas en ce qui concerne les récompenses.

le prédécès d'un fils est une éventualité anormale, on peut dire qu'elle n'est pas entrée dans les prévisions générales du souscripteur au moment où il s'est assuré; il aurait dû logiquement s'expliquer par un avenant. S'il ne l'a pas fait, c'est qu'il s'en est rapporté (on doit du moins le présumer) au sens du texte de la police, sens qu'on devrait alors prendre strictement. La clause dont nous examinons la portée présente donc l'inconvénient de toute clause qui a la prétention de pourvoir au moyen d'une formule unique et invariable non seulement à la situation de famille actuelle, mais à toutes celles qui pourront se présenter à l'avenir. D'ailleurs, la jurisprudence n'a pas définitivement adopté cette interprétation; aux termes d'un arrêt de la Cour de Cassation de 1894, une police au profit des enfants du souscripteur doit être considérée comme faisant partie de son patrimoine; le critérium est donc la volonté du souscripteur, mais traduite sous une certaine forme. Cette conception générale a été récemment encore affirmée par la Cour de Cassation dans une affaire où il était soutenu en sens inverse que la base du droit du bénéficiaire n'est pas la formule employée, mais la nature même de l'assurance; le fait même de la souscrire impliquerait la volonté de la placer en dehors du patrimoine, à moins qu'une volonté contraire ne soit exprimée; cette volonté contraire pourrait même, d'après le plaidoyer que nous analysons, ne pas résulter du fait de disposer de l'assurance par un testament, acte cependant destiné à fixer le sort du patrimoine. La Cour de Cassation n'a pas adopté cette manière de voir, au moins dans l'espèce qui lui était soumise; il se pourrait néanmoins qu'elle triomphât dans un avenir peu éloigné, car l'avant projet de loi sur le contrat d'assurance auquel nous avons déjà fait allusion sera probablement conçu en ce sens, complétant ainsi la consécration légale des principes déjà admis en fait.

ABSTRACT.

ON THE PROVISIONS OF FRENCH LEGISLATION RELATIVE TO LIFE INSURANCE FOR THE BENEFIT OF WIFE AND CHILDREN.

By Cosmao Dumanoir.

Since there is no Law in France which deals with the person named as beneficiary in a Life Insurance Policy, there is none which points out the rights of the wife and children of the person insured. Consequently, they find themselves in the same position as any other person. By applying the Art. 1121 of the French Civil Code, concerning the so-called *stipulatio pro alio*, both Lawyers and Courts have pointed out, — and indeed this standpoint has been adopted all through, — that the person named individually by the taker of a policy has a direct claim upon the amount insured; so that this sum has never been a part of the estate of the insured. In consequence thereof the creditors of the insured have no claim whatever on said sum.

While the insurance is in force and valid, the insured is entitled to name another beneficiary, — provided no acceptance has yet taken place; and this further nomination as well as the acceptance can be done in any shape or form. However, this so-called *jus revocandi* of the insured is a personal right of the taker, — otherwise any legal construction or presumption in favor of the beneficiary would be a dead letter. Furthermore, it is a personal right of the insured to demand the redemption of the policy, even when a receiver has been appointed for the estate of the insured.

It follows from the above legal grounds that the creditors have no claim upon either the amount insured for the benefit of the wife and the children of their debtor, or on the value of the very Insurance, unless they are able to contest the naming of the beneficiary *ob fraudem creditorum*, i. e., on account of defrauding creditors.

In case the insured lives in community of goods with his wife, which is most frequently the case in France, either party is liable to the community for the replacement of any sum which has been paid by said community for his or her benefit, and according to Art. 1066 of the French Civil Code the creditors, in lieu of the debtor, can claim such replacement. Thus the wife became liable to replace the amount of premiums paid by the community. The Courts have decided in this direction, but " according to circumstances " only, so that replacement was not required for such premiums which might be considered current expenses. The same rule applies to the so-called *rapport successoral* and *réduction* (refunding to the defunct's estate).

The above applies only to people individually named; therefore, a sum insured and payable *to the children* must be considered a part of the estate of the insured.

There is a committee of experts meeting at present in order to draw a bill, which in all probability will justify — generally spoken — the law now in force, or even improve the same.

KURZE NOTIZ.

ÜBER DIE BESTIMMUNGEN DER FRANZÖSISCHEN GESETZGEBUNG BEZÜGLICH DER LEBENSVERSICHERUNG ZU GUNSTEN DER FRAU UND KINDER.

VON COSMAO DUMANOIR.

Da in Frankreich kein Gesetz zu finden ist, das überhaupt das Recht des in einer Lebenversicherungspolice als Benefiziar Bezeichneten betrifft, so weist auch kein Gesetz auf die Rechte der Frau und der Kinder eines Versicherungsnehmers hin. Dementsprechend sind dieselben in demselben Stande als irgend ein Andrer. Durch Anwendung des die sog. *stipulatio pro alio* betreffenden Art. 1121 des französischen Bürgerlichen Gesetzbuches ist von Juristen und Rechtssprechung hervorgehoben und in der That überall angenommen worden, dass der vom Versicherungsnehmer individuell angezeigten Person ein direkter Anspruch auf die versicherte Summe gehört, so dass diese Bestandtheil des Vermögens des Versicherungsnehmers niemals gewesen; in Folge dessen gehört den Gläubigern des Versicherungsnehmers kein Anspruch auf die gedachte Summe. Während der Dauer der Versicherung steht dem Versicherungsnehmer das Recht zu, einen andren Benefiziar zu bezeichnen, solange eine Annahme nicht stattgefunden hat, was auch in irgend einer Form geschehen kann. Aber dieses *jus revocandi* ist ein persönliches Recht des Versicherungsnehmers, sonst wäre jede Rechtskonstruktion zu Gunsten des Benefiziars ein toter Buchstabe. Als persönlich ist auch das Recht zu betrachten, den Rückkauf der Police zu verlangen, und sogar wenn der Konkurs über das Vermögen des Versicherungsnehmers eröffnet wurde.

Aus den obenerwähnten Grundlagen folgt, dass den Gläubigern kein Anspruch weder auf die zu Gunsten der Frau oder der Kinder ihres Schuldners versicherte Summe, noch auf den Wert der Versicherung gehört, es sei denn, dass die Gläubiger die Bezeichnung des Benefiziars *ob fraudem creditorum* bekämpfen können.

Ist der Versicherungsnehmer in Gütergemeinschaft verheiratet, — was in Frankreich meistens der Fall ist, — haftet jeder der Eheleute der Gemeinschaft gegenüber für den Ersatz jeder Summe, welche von derselben zu seinem Vortheil entrichtet wurde, welcher Ersatz von den Gläubigern als Vertretern ihres Schuldners nach Massgabe des Art. 1066 B. G. B. beansprucht werden kann; in dieser Hinsicht wurde die Frau für den Ersatz der aus den Gemeinschaftsgeldern bezahlten Prämien schuldig. So geschieht auch der Rechtssprechung nach, aber nur *je nach den Umständen*, so dass keine Summe für diejenigen Prämien zu ersetzen ist, deren Betrag als der einer laufenden Ausgabe betrachtet werden könne. — Dasselbe gilt für die sogenannten *rapport successoral* und *réduction*.

Das Obenerwähnte gilt nur für individuell bezeichnete Personen; darum wäre eine *den Kindern* zu bezahlende Versicherungssumme als Bestandtheil des Vermögens des Versicherungsnehmers zu betrachten.

Uebrigens ist gegenwärtig ein Sachverständigen-Ausschuss mit der Einrichtung eines Gesetzentwurfes beauftragt, der wahrscheinlich die bisher herrschenden Grundlagen im wesentlichen rechtfertigen und auch verbessern wird.

DES LOIS ACTUELLEMENT EN VIGUEUR POUR LA PROTECTION DES ÉPOUSES ET DES ENFANTS EN TANT QUE BÉNÉFICIAIRES DE L'ASSURANCE SUR LA VIE CONTRE LES RÉCLAMATIONS DES CRÉANCIERS.

PAR J. LEFORT,

Avocat au Conseil d'État et à la Cour de Cassation,
Membre correspondant de l'Association des Actuaires Belges.

Dans la très grande majorité des cas l'assurance sur la vie est souscrite par un mari au profit de sa femme, par un père dans l'intérêt de ses enfants. Néanmoins les législations qui ont été votées dans les pays où l'assurance sur la vie est règie par des dispositions précises ne semblent pas avoir envisagé, au regard des créanciers de l'assuré, le sort de l'assurance sur la vie au profit de la femme et des enfants. Elles ont posé une règle fixe, applicable à tous les cas et décidé que tout bénéficiaire, qu'il soit parent ou étranger, reçoit à l'égard du profit de l'assurance un droit qui l'emporte sur celui des créanciers de l'assuré. C'est ainsi que la loi belge du 11 juin 1874 (dont les termes ont été copiés textuellement par la loi luxembourgeoise du 16 mai 1891) se borne à dire (art. 43) : « *La somme stipulée payable au décès de l'assuré appartient à la personne désignée par le contrat, sans préjudice de l'application des règles du droit civil relatives au rapport et à la réduction du chef des versements faits par l'assuré.*» C'est ainsi pareillement que le Code de commerce espagnol de 1885 dispose, dans l'article 428, que « *les sommes que l'assureur doit verser, en vertu du contrat, à la personne assurée sont la propriété de celle-ci, sans qu'il y ait lieu de s'arrêter aux réclamations des héritiers légitimes ou des créanciers de celui qui avait fait l'assurance au profit de la dite personne,*" et dans l'article 429 que "*la liquidation judiciaire ou la faillite de l'assuré n'entraîne ni la nullité, ni la rescision du contrat, mais il peut y avoir lieu à réduction, sur la demande des représentants légitimes de la faillite ou de la liquidation.*» De même, le Code de commerce italien de 1886 détermine, dans l'article 453, le sort du capital assuré en disant qu'« *en cas de faillite ou de décès de celui qui a contracté une assurance sur sa propre tête ou sur la tête d'un tiers dans l'intérêt d'une autre personne, le profit de l'assurance appartient exclusivement à cette personne, même si elle est le successible du souscripteur de la police, sauf, en ce qui touche les versements effectués, les dispositions du Code civil concernant soit le rapport et la réduction en matière des successions, soit la révocation des actes faits en fraude des créanciers.*» D'une autre côté, le Code de commerce portugais de 1888 déclare, dans son article 460 : « *en cas de mort ou de faillite de celui qui s'est assuré ou qui assure la vie d'un tiers l'assurance subsiste au bénéfice exclusif de la personne désignée dans le contrat, sauf cependant, en ce qui concerne les sommes perçues par l'assureur, les dispositions du Code civil relatives aux rapports, à l'inofficiosité en matière de succession et à la rescision des actes accomplis en fraude des créanciers.*»

La loi la plus récente sur le contrat d'assurance sur la vie, la loi argentine du 4 août 1900 se borne à décider que « *l'assurance sur la vie constituée au profit d'un tiers est un bien appartenant exclusivement à*

celui-ci et elle ne répond en aucun cas des obligations dont le constituant pourra être débiteur à l'époque de son décès, sauf en ce qui concerne les sommes reçues par l'assureur, lesquelles seront soumises aux dispositions du Code civil relatives au rapport et à la légitime des héritiers nécessaires et à la révocation des actes faits au préjudice ou en fraude des créanciers.»

Des dispositions spéciales ne semblent avoir été édictées qu'en Angleterre et à l'Ile Maurice. L'*Act* du 9 août 1870 (33 et 34 Vict., c. 93, dont l'application a été étendue à l'Écosse par un *Act* du 26 août 1880) ou *Married Women's Property Act,* dit (article 10) : « *Une femme mariée peut faire à son profit personnel une assurance sur la vie ou sur celle de son mari, comme si elle n'était pas mariée. Une assurance faite par un homme marié sur sa propre vie, avec déclaration expresse que cette assurance est faite au profit de la femme et de ses enfants, sera considérée comme un fidéicommis au profit de la femme pour son usage particulier et celui de ses enfants, en dehors de tout contrôle du mari et des créanciers de ce dernier. Si le montant de l'assurance devient payable durant le mariage, un trustee pourra être nommé à l'effet de recevoir le paiement. Dans le cas où l'assurance aurait été faite et payée par le mari en fraude de ses créanciers, ceux-ci auraient droit de prélever une somme égale au montant des primes ainsi payées.*»

Le 10 août 1882 le législateur a unifié et modifié la législation relative aux biens des femmes mariées (*Married Women's Property Act,* 45 et 46, Vict., c. 75), intervenue pour amender les dispositions antérieures et codifier les lois sur les biens de la femme mariée en un seul acte de Parlement.* Une disposition spéciale proclame que les sommes payables sur une police d'assurance ne constituent pas une partie de l'actif de l'assuré. Une femme mariée peut, en vertu de son droit, s'obliger par contrat, souscrire une police sur sa vie ou sur celle de son mari, pour son usage indépendant, et tout le bénéfice de cette police lui reviendra. Une police d'assurance contractée par son mari sur sa propre vie et libellée en faveur de sa femme ou de ses enfants ou en faveur de certains d'entre eux, ou par la femme sur sa propre vie et libellée en faveur de son mari ou de ses enfants à, elle crée une charge (*trust*) en faveur des personnes désignées, et les sommes exigibles en vertu de ce contrat jusqu'au jour où cette charge n'est pas remplie n'entrent pas dans l'actif de l'assuré et ne sont pas affectées à son passif. Toutefois, au cas où il serait prouvé que la police a été souscrite et que les primes ont été versées dans le but de frauder les créanciers de l'assuré, il leur appartient de prélever, sur les sommes payables d'après la police, une somme représentant le montant des primes ainsi payées.†

L'Ordonnance de 1881 rendue pour l'Ile Maurice (ord. N°. 33, *To rogate certain matters relating to assurance*) ne se borne pas à proclamer, dans l'article 1er, la validité de « *toute police d'assurance sur la vie souscrite par un homme et relatant soit sur le titre même, soit par déclaration subséquente ou par transport qu'elle est au profit de la femme, des enfants ou petits enfants nés ou à naître, ou de l'un d'eux, sans qu'il soit nécessaire d'inscrire le nom de bénéficiaire sur la police ou le transport* »; l'article 3 dispose expressément: « *le montant d'une police souscrite ou transportée ne tombe pas dans le patrimoine de l'assuré et appartient aux parties en faveur desquelles elle aura été faite; toutefois s'il est prouvé que la police a été souscrite ou transportée et la prime*

* Barclay, *La femme anglaise,* p. 30.
† Cf. Lehr, *Éléments de droit civil anglais,* p. 616.

payée en fraude des créanciers, ceux-ci auront le droit de réclamer du bénéficiaire de l'assurance le remboursement des primes ainsi payées.»

En France, quoiqu'il n'existe encore aucune législation régissant le contrat d'assurance sur la vie et bien que les règles applicables en cette matière aient été déduites des principes généraux du droit, la jurisprudence des tribunaux, qui fait office de loi, a réglé les rapports de la femme et des enfants à l'encontre des créanciers de l'assuré: elle a déclaré qu'au cas de police souscrite en faveur de ces personnes le droit au capital assuré n'avait pas fait partie du patrimoine de l'assuré et que, dès lors, il ne pouvait pas être revendiqué par les créanciers.

A la vérité, ce n'est pas sans peine que l'exclusion des créanciers de l'assuré venant contester l'assurance souscrite au profit de la femme ou des enfants a pu être admise. Et encore cette jurisprudence n'est-elle pas à l'abri de la critique.

Nous envisagerons successivement ici l'assurance souscrite au profit des enfants et celle passée dans l'intérêt de la femme mariée.

Dans le droit français il est acquis aujourd'hui, tant en doctrine qu'en jurisprudence, qu'il convient de distinguer, d'une part, l'assurance contractée au profit de personnes sinon nommément désignées, au moins indiquées d'une façon suffisamment précise pour que le doute ne soit pas possible sur leur individualité; et d'autre part, l'assurance souscrite pour les héritiers ou ayants cause. Dans le premier cas il y a stipulation pour un tiers déterminé, dans les termes de l'article 1121 du Code civil: le bénéfice est réputé avoir été acquis par le bénéficiaire dès le jour même où la police a été signée, sans avoir passé par les biens de l'assuré; si ce bénéfice n'a jamais fait partie du patrimoine il ne peut pas être revendiqué par les créanciers de l'assuré puisque le droit des créanciers ne peut porter que sur les biens de leur débiteur. Dans le second cas, au contraire, il y a eu stipulation pour des tiers indéterminés, dans les conditions de l'article 1122 du Code civil: le droit au capital assuré n'a pas pu se fixer sur la tête d'une personne, car l'on ne saurait contracter dans l'intérêt d'une personne qui peut être inexistante, mais qui en tous cas est incertaine; dès lors, ce droit est resté dans l'actif du souscripteur de la police, de telle sorte que les créanciers peuvent le recueillir comme tout autre élément de l'actif. Par application de ces principes constants* les tribunaux français admettent, à la suite de la Cour de cassation qui a consacré ces règles, que le père qui contracte une assurance soit pour l'enfant ou les enfants qu'il désigne par leur nom, soit pour les enfants vivants lors de la souscription de la police, confère à ces bénéficiaires un droit propre au capital assuré, droit qui rétroagit au jour où le contrat a pris effet et qui leur permet de repousser toute prétention de la part des créanciers de l'assuré dont l'action est restreinte à la valeur des primes prélevées sur le produit du travail ou sur les revenues et encore lorsque le montant est excessif et dépasse les sommes dont toute personne peut disposer librement sans encourir le reproche d'une mauvaise gestion. D'un autre côté, les tribunaux proclament que si le père de famille contracte non pas seulement au profit de ses enfants qui sont nés, mais en même temps pour les enfants qui surviendront par la suite, en d'autres termes si la police est passée en faveur des « *enfants nés et à naître,* » il est censé traiter au profit de tiers indéterminés, pour son patrimoine,

*Comp. soit pour la justification de ces règles, soit pour les renvois de doctrine et de jurisprudence qui ne sauraient être indiqués ici à raison de la place qu'exigerait un pareil travail: J. Lefort, *Traité théorique et pratique du contrat d'assurance sur la vie*, T. I, p. 207 à 229; T. II, p. 220 à 262 et 276 à 279;— Dupuich, *Traité pratique de l'assurance sur la vie*, p. 24 à 48, p. 391, etc.

de telle sorte que ce dernier étant le gage commun qui répond de ses dettes, ses créanciers peuvent toucher le capital assuré au lieu et place des enfants.

Assurément une contestation s'est élevée parmi les auteurs; les personnes qui ont étudié en France le problème de l'assurance sur la vie ont protesté contre cette distinction qui aboutit à empêcher un père de mettre sur le même rang les enfants qu'il a lors de la conclusion du contrat et ceux qui naîtront par la suite.[1] Dans le Rapport que nous avons présenté au mois de janvier 1903 à la Commission instituée au Ministère du Commerce pour préparer un projet de loi sur le contrat d'assurance, sous l'empire de cette considération absolument décisive que si la plupart des contrats sont destinés à satisfaire aux intérêts présents de l'existence humaine, et que si pour eux la personne en vue de laquelle on traite doit exister, ces règles ne sauraient se comprendre pour l'assurance en cas de décès destinée à parer aux éventualités de l'avenir; nous avons reproduit les critiques qui ont cours à ce propos et soutenu que l'essence du droit ne s'oppose pas à ce que des personnes non conçues soient appelées à recueillir, sous la condition de survie et de maintien du contrat, bien entendu; ce qui s'explique, du reste, puisque dans plusieurs pays, sous l'empire de dispositions générales analogues à celles en vigueur en France, l'assimilation est complète entre l'enfant *né* et l'enfant *à naître*.[2] Mais un revirement dans la jurisprudence ne paraît pas possible et les tribunaux ne semblent pas décidés à modifier leur manière de voir. Un changement ne se produira que lorsque le législateur aura réalisé la reforme en disposant d'une façon expresse[3] que la police souscrite par un père au profit de ses enfants (et même de ses petits enfants) attribuera aux personnes gratifiées un droit propre et excluant les héritiers et les créanciers de l'assuré aussi bien lorsque la police visera les enfants nés que lorsqu'elle s'appliquera aux enfants à naître.

Les droits de la femme mariée semblent mieux sauvegardés dans l'état actuel de la jurisprudence française. Il est permis de considérer que son droit privatif sur le capital assuré est maintenant reconnu. Ce n'est pas sans peine non plus que ce résultat a été acquis.[4]

Lorsque l'institution des assurances sur la vie reçut en France son plein développement, quand les tribunaux furent saisis des premières con-

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[1] V. notamment Duhaut: *La justification de la jurisprudence de la Cour de cassation en matière d'assurance sur la vie*, p. 40; Couturier: *De l'assurance sur la vie en général et de l'assurance sur la vie entre époux*, p. 136.

Pour notre part, nous avons toujours soutenu qu'en présence d'une stipulation faite par un père au profit de ses enfants *nés et à naître* il y avait lieu de distinguer, de déclarer non pas la stipulation nulle pour le tout mais valable en ce qui concerne les enfants *nés* et nulle seulement à l'égard des enfants *à naître* (V. nos observations, *Pandectes françaises périodiques*, 1893, 1ère partie, p. 257, et *Les Assurances sur la vie et la Cour de cassation en 1893*, p. 8 à 12). Si certains tribunaux ont accepté cette manière de voir, d'autres, en majorité, l'ont condamnée et la Cour de cassation elle même semble plus portée à admettre ce dernier parti. V. notre *Traité théorique et pratique du contrat d'assurance sur la vie*, T. II, p. 259.

[2] En disant, par exemple, que « *la somme stipulée payable au décès de l'assuré appartient à la personne désignée dans le contrat,* » l'article 43 de la loi belge de 1874 (copié par l'article 43 de la loi luxembourgeoise de 1891) attribue le profit de l'assurance aux personnes désignées dans la police soit individuellement, soit même collectivement. — V. Furquim d'Almeïda: *Des assurances sur la vie spécialement en cas de décès*, p. 145.

[3] Ainsi que le fait l'Ordonnance de 1881 pour l'Ile Maurice.

[4] L'état de la doctrine et de la jurisprudence françaises est résumé tant par M. Dupuich (op. cit. p. 417 et suiv.) que dans notre *Traité du contrat d'assurance sur la vie*, T. II, p. 295 à 308.

testations soulevées par ce contrat, les tribunaux considéraient que si un mari avait pris soin de souscrire une police au profit de sa femme, cette femme en recueillait le bénéfice d'une façon incontestable, qu'elle ne pouvait en être privée par nulle autre personne, même par les créanciers de son mari. Mais à partir de 1879 une tendance contraire parut se manifester; les tribunaux (et même la Cour de Cassation qui avait consacré cette solution par arrêt du 2 mars 1881) en arrivèrent à introduire une exception au principe général qui veut que le capital assuré soit recueilli par la personne en vue de laquelle la police a été souscrite; se fondant sur les articles 559 et 564 du Code de commerce qui interdisent à la femme d'un failli de se prévaloir de toute libéralité faite par son mari, ils attribuaient aux créanciers le profit de l'assurance lorsque le mari était tombé en faillite après la conclusion du contrat. Cette doctrine n'était pas rationelle, elle ne pouvait persister.

Le 2 juillet 1884, par un véritable arrêt de principe dont l'influence sur le développement ultérieur de la jurisprudence a été très grande, la Cour de cassation a décidé que l'assurance passée au profit d'un tiers déterminé a pour effet de créer au profit du tiers bénéficiaire un droit de créance contre l'assureur, que ce droit est personnel au tiers bénéficiaire, ne repose que sur sa tête et ne constitue pas une valeur successorale puisque le capital assuré n'existe pas dans les biens de l'assuré durant sa vie, ce capital ne se formant et ne commençant d'exister que par le fait même de la mort de l'assuré. Des auteurs, des magistrats ont immédiatement déduit de cet arrêt que si le bénéfice de l'assurance est acquis à la personne gratifiée il n'entre pas dans les biens du stipulant, partant que le syndic de la faillite ne pouvant faire prononcer la révocation des actes effectués par le failli que lorsque ces actes ont diminué les biens du débiteur, le profit de l'assurance devait être maintenu à la femme puisque ce profit de l'assurance vient d'un tiers, l'assureur, et que son affectation à la femme n'a pas diminué le patrimoine du commerçant. Néanmoins les tribunaux résistaient, en grande majorité, à étendre la reconnaissance du droit propre au cas d'assurance contractée dans l'intérêt de sa femme par un mari contre lequel les créanciers avaient des droits à faire valoir. Mais le 22 février 1888 la Cour de cassation a supprimé la possibilité de toute contestation en décidant que les dispositions des articles 559 et 564 du Code de commerce ont pour but de conserver aux créanciers leur gage et de faire rentrer dans la masse de la faillite les valeurs qui en auraient été distraites à leur détriment et que ces dispositions ne sauraient s'appliquer à une assurance sur la vie contractée directement au profit de la femme du failli et n'ayant jamais fait partie du patrimoine de l'assuré, que l'avantage ainsi créé par l'assuré au profit de sa femme n'appartient pas plus aux créanciers de l'assuré qu'à l'assuré lui-même, sauf le droit d'exiger, suivant les circonstances, la restitution des primes payées par l'assuré sur ses fonds personnels. Et cette solution a été par la suite étendue au cas où le capital assuré ne serait attribué à la femme que par un avenant.

A l'heure actuelle il n'existe plus de controverse sérieuse à cet égard; la question des droits de la femme au regard des créanciers du mari peut être regardée comme définitivement résolue et résolue en faveur de la femme bénéficiaire.

ABSTRACT.

ON EXISTING LEGISLATION FOR THE PROTECTION OF WIVES AND CHILDREN, AS LIFE INSURANCE BENEFICIARIES, AGAINST THE CLAIMS OF CREDITORS.

By J. Lefort.

In Belgium, Luxemburg, Spain, Italy, Portugal and Argentina there is no special provision made for the wife and children of a policy-holder in case his creditors claim the amount of the insurance policy; wife and children are treated just like ordinary beneficiaries; creditors of the husband or father are left out. It is only in Great Britain and the island of Mauritius that special laws have been enacted for the benefit of wives and children; there also the right of the beneficiaries cuts out the creditors.

In France the laws do not attempt to regulate life insurance; the courts' jurisprudence takes the place of legislation, but has the same effect as legal enactments. This jurisprudence may be summed up as follows: When a husband contracts an insurance for the benefit of his wife, the husband's creditors are entirely cut out by the beneficiary because the right to the amount of the policy has never been a part of the husband's estate, and has always been the property of the beneficiary; the same thing happens when a father contracts insurance for his living children, designated by names or sufficiently specified; when on the other side a father contracts an insurance for the benefit of children yet unborn, the creditors may claim the amount of the policy; this right exists for them even if the father contracts an insurance for his children both already born and to be born.

KURZE NOTIZ.

ÜBER DIE EXISTIERENDEN GESETZE ZUM SCHUTZE VON FRAUEN UND KINDERN ALS LEBENSVERSICHERUNGS-BENEFICIATE GEGEN ANSPRÜCHE VON GLÄUBIGERN.

Von J. Lefort.

In Belgien, Luxemburg, Spanien, Italien, Portugal und der Argentinischen Republik giebt es keine besondere Stellungnahme für die Frauen und Kinder von Versicherten für den Fall, dass Gläubiger des Letzteren Anspruch auf den Versicherungsbetrag erheben. Frau und Kinder werden wie gewöhnliche Beneficiate behandelt, Gläubiger des Gatten oder Vaters sind ausgeschlossen. Nur in Gross-Britannien und der Insel Mauritius bestehen besondere Gesetze zu Gunsten der Frauen und Kinder; dort gleichfalls scheidet das Recht der Beneficiate die Gläubiger aus.

In Frankreich regelt kein Gesetz die Lebensversicherung; da tritt die Gerichts-Jurisprudenz an Stelle der Gesetzgebung, hat aber dieselbe Kraft, wie gesetzliche Vorschriften. Diese Jurisprudenz kann wie folgt zusammengefasst werden: Wenn ein Gatte eine Lebensversicherung zu Gunsten seiner Frau aufnimmt, so werden des Gatten Gläubiger von dem Beneficiate gänzlich ausgeschlossen, denn das Recht auf den Versicherungsbetrag hat niemals einen Theil des Erbes ausgemacht und ist immer Eigenthum der Beneficiate gewesen. Dasselbe ist der Fall, wenn ein Vater eine Versicherung zu Gunsten seiner lebenden Kinder aufnimmt, die er entweder mit Namen oder auf eine sonstige Art genügend specifiziert; wenn andererseits ein Vater eine Versicherung zu Gunsten seiner noch nicht geborenen Kinder aufnimmt, darf der Gläubiger Anspruch auf den Versicherungsbetrag erheben; selbst dann ist er dazu berechtigt, wenn die Versicherung gleichzeitig zu Gunsten der lebenden und ungeborenen Kinder aufgenommen ist.

SCHUTZ DER FRAUEN UND KINDER ALS BEGÜNSTIGTE PERSONEN IN DER LEBENSVERSICHERUNGSPOLICE.

Von Dr. Jur. Paul Moldenhauer, (Köln).

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Der Hauptzweck, dem die Lebensversicherung von jeher gedient hat und auch in Zukunft dienen wird, ist die Versorgung der Familie für den Fall des vorzeitigen Todes des Familienoberhauptes. Weil die Gefahr besteht, dass der Familienvater zu einer Zeit stirbt, in der für Frau und Kinder noch nicht gesorgt ist, lässt er sich von einem Dritten, dem Versicherer, versprechen, eine Summe Geldes bei seinem, des Versicherten, Tod an seine Familie zu zahlen, welche ihr ermöglichen soll, den wirtschaftlichen Nachteil, den sein Tod mit sich führt, auszugleichen oder wenigstens zu vermindern. Dieser Hauptzweck tritt auch nicht durch die immer mehr überhandnehmende abgekürzte, richtiger gesagt gemischte Versicherung in den Hintergrund. Auch hier ist die erste Veranlassung zur Versicherung die Sorge um die Familie. Diesem Hauptmotiv gesellt sich die Erwägung bei, dass eine Vorsorge für die Zeit, wo die Familie deren nicht oder nur in geringem Grade mehr bedarf, ökonomisch unrichtig ist, dass es vielmehr auch eine Gefahr gibt, alt zu werden, weil eben mit dem Alter die Erwerbsfähigkeit abnimmt. Gegen diese Gefahr schützt eine Erlebensversicherung. Ablebens- und Erlebensversicherung miteinander kombiniert ergibt die gemischte Lebensversicherung.

Das Hauptmotiv zur Versicherung, die Versorgung der Familie, kommt in der Mehrzahl der Fälle dadurch zum Ausdruck, dass der Versicherer in der Police ausdrücklich verspricht, beim Tode des Versicherten die Versicherungssumme an die Frau und Kinder auszuzahlen. Die Frage ist nun, inwieweit das deutsche Recht die Frauen und Kinder, welche in der Police als Begünstigte bezeichnet sind, davor schützt, dass der Zweck der Versicherung wieder vereitelt wird, und welche Änderungen angesichts der bevorstehenden Kodifikation des Versicherungsvertrages nötig erscheinen, um einen gerechten Ausgleich der möglichen Interessenkonflikte herbeizuführen.

Wir haben hier einen Vertrag über die Leistung an einen dritten vor uns. Der Versprechensempfänger ist der Versicherte, der Versprechende der Versicherer, der dritte sind die Frau und die Kinder, die Familie. Das Eigentümliche dieser, erst von dem B. G.-B. völlig anerkannten Verträge ist, dass der Begünstigte ohne sein Wissen und Zutun ein Recht erwirbt, und dass er diesen Rechtserwerb nicht von dem Versprechensempfänger ableitet, sondern einen unmittelbaren Anspruch gegen den Versprechenden erhält. Wann er dies Recht erwirbt, ob sofort und dann bedingt oder unbedingt, oder später, das unterliegt der Vereinbarung der Parteien.

Ein solcher Vertrag über die Leistung an einen dritten ist also auch, wie oben erwähnt, der Lebensversicherungsvertrag, durch welchen der Versicherer verspricht, der Familie des Versicherten bei dessen Tode eine bestimmte Summe Geldes zu zahlen. Bei der gemischten Versicherung kann natürlich nur insoweit von einem Vertrag über die Leistung

an einen dritten gesprochen werden, als die Todesfallversicherung in Betracht kommt, dagegen nicht insoweit, als es sich um eine Erlebensfallversicherung handelt. Erlebt daher der Versicherte den Endtermin, so hat nur er, nicht aber seine Familie, Anspruch auf die Versicherungssumme. Unter dieser Voraussetzung ist im folgenden kein Unterschied zwischen lebenslänglicher und gemischter Versicherung gemacht worden.

Von einem Versicherungsvertrag zugunsten dritter kann aber nur gesprochen werden, wenn die Personen, welche den Anspruch auf die Versicherungssumme erhalten sollen, deutlich bezeichnet sind. Eine Anführung der Namen ist nicht nötig, es genügt die Bezeichnung: die Ehefrau, Frau und Kinder, die Hinterbliebenen; nicht dagegen „die Erben," da dann angenommen wird, dass der Versicherte die Forderung als Teil des Nachlasses hinterlassen will, ebenso wie wenn er keinen Begünstigten bezeichnet hätte (s. Ehrenberg, Wichtige Probleme des Lebensversicherungsrechts in Jherings Jahrbüchern für die Dogmatik des bürgerlichen Rechts, Bd. 41, S. 365; Fuld, das B. G.-B. und der Lebensversicherungsvertrag zu Gunsten dritter in Baumgartners Zeitschrift, Bd. 4, S. 464; Rüdiger, die Rechtslehre vom Lebensversicherungsvertrag, S. 281. Anderer Ansicht Hülsse, Zur Lehre von der Versicherung zu Gunsten eines dritten in Baumgartners Zeitschrift, Bd. 5, S. 460. Hülsse meint, die Bezeichnung „an die Erben" verleihe dem Vertrag den Charakter eines Vertrages über die Leistung an einen Dritten. In einem Ausnahmefall hat allerdings das Reichsgericht eine auf die Erben ausgestellte Police als einen Vertrag zu Gunsten Dritter aufgefasst, aber nur deshalb, weil der Versicherte dem Agenten gesagt hatte, seine Absicht sei, für seine Mutter zu sorgen [R.-G. 11. 5. 1900, Masius Rundschau 1900, S. 414]. Dieser Ausnahmefall schliesst eine Verallgemeinerung aus).

Darüber, wann der Begünstigte das Recht auf die Lebensversicherungssumme erwerben soll, enthalten die Policen regelmässig keine Bestimmungen. Es tritt deshalb die Auslegungsregel des § 331 des B. G.-B. ein, nach welchem der Dritte, wenn die Leistung an ihn erst nach dem Tode des Versprechensempfängers erfolgen soll, das Recht auf die Leistung erst in diesem Augenblick erwirbt. Also erwirbt auch die Familie das Recht auf die Versicherungssumme erst mit dem Tode des Versicherten, vorher hat sie kein Recht, weder ein betagtes noch ein bedingtes, sondern nur eine juristisch bedeutungslose Hoffnung (s. Planck, Bd. 2, S. 110; Dernburg, Lehrbuch des B. G.-B., Bd. 2, S. 236; Ehrenberg, Probleme, S. 383). Das kann natürlich durch Vereinbarung zwischen dem Versicherer und dem Versicherten anders gestaltet werden und demgemäss die Familie sofort ein unwiderrufliches oder auch nur ein widerrufliches Recht erhalten. Diese Regelung ist in Deutschland nicht gebräuchlich. Deshalb scheiden wir diesen Fall zunächst aus unserer Betrachtung aus und halten uns an den Regelfall, also denjenigen, in welchem die Familie den Anspruch erst im Augenblick des Todes des Versicherten erhält.

I. Die Versorgung der Familie kann schon zu Lebzeiten des Versicherten vereitelt, bezw. beeinträchtigt werden.

1. Dies kann durch den Versicherten selbst geschehen. Voraussetzung des späteren Anspruches der Familie gegen den Versicherer ist zunächst die Gültigkeit des Versicherungsvertrages selbst. Wird dieser z. B. wegen verletzter Anzeigepflicht angefochten, so fällt damit auch das Versprechen des Versicherers, die Versicherungssumme an die Familie zu zahlen. Voraussetzung des Anspruches ist ferner, dass der Versicherte nicht gegen die ihm vertraglich auferlegte

legten Pflichten, wie sie in den Versicherungsbedingungen zusammengefasst sind, verstösst, da Einwendungen aus dem Vertrage dem Versprechenden auch gegenüber dem Dritten zustehen (B. G.-B., § 334). Unterlässt der Versicherte die Prämienzahlung, reist er in verbotenen Gegenden, macht er seinem Leben durch Selbstmord innerhalb der Karenzzeit ein Ende, so erhält die Familie keinen Anspruch gegen den Versicherer. Sie erhält auch den Anspruch auf den Rückkaufspreis nur als Rechtsnachfolger des Versicherten, nicht als Begünstigte. Denn der Versicherer verspricht nur, dem Begünstigten die Versicherungssumme zu zahlen. Dies setzt aber Erfüllung des Vertrages voraus. Das ist nicht geschehen. Die Zahlung des Rückkaufpreises ist nur eine Rückzahlung der noch im Besitz des Versicherers befindlichen und zur Deckung der künftigen Verbindlichkeiten bestimmten Prämienteile, deren Rückzahlung erfolgt, weil der nach dem Inhalt des Rechtsgeschäftes bezweckte Erfolg nicht eingetreten ist (s. Moldenhauer, Die rechtliche Natur des Rückkaufs u. s. w. in Ehrenzweigs Assekuranz-Jahrbuch, Bd. 24, S. 56). Die Rückzahlung erfolgt also an den Prämienzahler, das ist der Versicherte bezw. dessen Rechtsnachfolger. (Anderer Ansicht Ehrenberg, S. 392.)

Da die Familie des Versicherten zu dessen Lebzeiten kein Recht erwirbt, kann der Versicherte frei über die Forderung verfügen.

a) Er kann die Bezeichnung des Dritten widerrufen, entweder durch die Bestimmung, dass der Versicherungsvertrag nun zu seinen Gunsten lauten soll oder dadurch, dass er einen andern als Begünstigten einsetzt. Dies kann stets durch Vereinbarung mit dem Versicherer geschehen. Im Zweifel ist aber anzunehmen, dass dem Versicherten das Recht zustehen soll, ohne Zustimmung des Versicherers an die Stelle des im Vertrage Bezeichneten einen andern zu setzen, da es ja dem Versicherer gleichgültig ist, wer schliesslich den Anspruch auf die Versicherungssumme hat (s. Ehrenberg, S. 370; Hellwig, Die Verträge auf Leistung an Dritte, S. 225; ebenso § 155 des Entwurfes eines Reichsgesetzes über den Versicherungsvertrag). Die Erklärung muss dem Versicherer gegenüber erfolgen, wenn sie nicht in einer Verfügung von Todeswegen geschieht (B. G.-B. § 332; Planck, S. 111; Hellwig, S. 228. Auch die Motive zu dem vorher erwähnten Entwurf sprechen von einem einseitigen empfangsbedürftigen Rechtsgeschäft, das dem Versicherer gegenüber vorzunehmen sei; amtliche Ausgabe, S. 177). Geht natürlich aus den Versicherungsbedingungen hervor, dass die Person des Begünstigten dem Versicherer nicht gleichgültig ist, so hat der Versicherte kein einseitiges Abänderungsrecht. Findet sich z. B. die Klausel, dass bei Selbstmord die Versicherungssumme nur gezahlt werden soll, wenn die Police zugunsten einer mit dem Versicherten nicht verwandten Person ausgestellt ist (Vers.-Bed. der Concordia, Art. 6), so hat offenbar der Versicherte nicht das Recht, an Stelle der Frau und Kinder eine mit ihm nicht verwandte Person durch einseitige Verfügung als Begünstigte zu bezeichnen.

b) Der Versicherte kann die Police cedieren. Damit widerruft er die Benennung des Begünstigten und vernichtet demgemäss die Anwartschaft der Familie.

c) Der Versicherte kann die Police verpfänden. Da-

durch wird die Anwartschaft der Familie nicht vernichtet, sondern nur um den Betrag der Schuld des Versicherten gegenüber dem Pfandgläubiger geschmälert. Erreicht freilich die Schuld die Höhe der Versicherungssumme, so geht auch hier die Familie leer aus. Eine Schmälerung tritt auch dann ein, wenn der Versicherte die Police von dem Versicherer beleihen lässt, in Höhe der Beleihung; ebenso bei Umwandlung der Police in eine prämienfreie mit reduzierter Versicherungssumme.

2) Der Versorgung der Familie kann durch Gläubiger des Versicherten Gefahr drohen.

a) Ein Gläubiger kann die Versicherungsforderung pfänden lassen. Dadurch tritt eine Schmälerung der Versorgung der Familie ein, und wenn die Versicherungssumme von der Forderung der Gläubiger erreicht oder überstiegen wird, so wird die Versorgung vereitelt. Können die Gläubiger den Rückkauf verlangen? Zur Entscheidung dieser für den Begünstigten so ausserordentlich wichtigen Frage ist auf die rechtliche Natur des Rückkaufs zurückzugehen. Durch den Lebensversicherungsvertrag erwirbt der Versicherte das Recht auf Auszahlung der Versicherungssumme unter der Voraussetzung, dass er pünktlich seine Prämienzahlungen leistet. Zu diesen Zahlungen ist er nur berechtigt, nicht aber verpflichtet. Stellt er sie ein, so gibt der Versicherer ihm einen vereinbarten Teil der eingezahlten Prämien zurück, da diese nur in der Voraussetzung so hoch bemessen wurden, dass der Versicherte bis zum Eintritt des Versicherungsfalles seine Prämien zahlen würde. Man kann demnach, solange die Versicherung besteht, nur von einem bedingten Forderungsrecht auf den Rückkaufswert sprechen, bedingt durch das Unterlassen der Prämienzahlung. Wird nun die Versicherungsforderung gepfändet, so wird damit allerdings auch die bedingte Forderung auf den Rückkaufswert gepfändet. Diese Forderung ist aber nur realisierbar, wenn die Bedingung eintritt, also der Versicherte seine Prämienzahlungen einstellt. Ob er das tut, ist seine Sache; der Gläubiger kann ihn nicht dazu zwingen. (Zu demselben Ergebnis, allerdings mit einer andern Motivierung, kommt Ehrenberg, S. 376. Anderer Ansicht Hellwig, S. 235. Er schlägt aber *de lege ferenda* vor, zu bestimmen, dass das im Lauf befindliche Sparunternehmen durch die Pfändung nicht unterbrochen werden dürfe.)

b) Über das Vermögen des Versicherten wird der Konkurs eröffnet. Die Konkursordnung gibt dem Konkursverwalter das Recht, zweiseitige Verträge, welche zur Zeit der Eröffnung des Konkursverfahrens von dem Gemeinschuldner und dem andern Teil nicht oder nicht vollständig erfüllt sind, an Stelle des Gemeinschuldners zu erfüllen und die Erfüllung von dem andern zu verlangen (K.-O., § 17). Der Konkursverwalter kann also die Prämien aus der Masse weiter zahlen, und er wird dies namentlich dann tun, wenn der Tod des Versicherten bald zu erwarten ist. Für die Familie geht die Versicherung verloren. Jedoch muss der Konkursverwalter die Bezeichnung des Begünstigten widerrufen, sonst erhält dieser trotz der Eröffnung des Konkurses beim Tode des Versicherten den Anspruch auf die Versicherungssumme (s. R.-G.

8. 2. 1898, Baumgartners Zeitschrift, Bd. 5, S. 52). Der Konkursverwalter kann aber auch, weil er die Vermögensverwaltung des Gemeinschuldners übernimmt (K.-O. § 6) und hierzu auch die Verfügung über die Lebensversicherungspolice gehört, die Weiterzahlung der Prämien unterlassen und den Rückkauf verlangen. (Anderer Ansicht Ehrenberg, S. 376; ich vermag in dem Recht auf Vertragserfüllung kein höchst persönliches Recht des Versicherten zu erblicken.)

Das Recht des Konkursverwalters zur Aufgabe der Versicherung verletzt lebhaft das Interesse der Familie. Der soeben erschienene Entwurf eines Gesetzes über den Versicherungsvertrag berücksichtigt diese Frage nicht. Trotzdem glaube ich, dass es sich empfiehlt, in das bevorstehende Gesetz eine Bestimmung aufzunehmen ähnlich der in dem Schweizer Entwurf über den Versicherungsvertrag enthaltenen. Danach können der Ehegatte und die Kinder des Schuldners mit dessen Zustimmung verlangen, dass der Versicherungsanspruch gegen Erstatten des Rückkaufspreises ihnen übertragen werde. Diese Summe kann die Familie trotz des Konkurses aufbringen, da rückkaufsfähige Policen bis zur Höhe des Rückkaufswertes beleihbar sind. War die Police schon vorher beliehen, so vermindert sich der Rückkaufspreis dementsprechend. Diese Bestimmung scheint mir zweckmässiger als das von Hauenschild vorgeschlagene Executionsprivileg wegen der damit verbundenen Beschränkung der Verfügung über die Police (Hauenschild, zur Frage der Executionsfreiheit der Lebensversicherungspolice in Ehrenzweigs Assekuranz-Jahrbuch, Bd. 24, S. 33 ff.).

Die Rechtslage ist natürlich eine ganz andere, wenn die Parteien vereinbaren, dass der Begünstigte das Recht auf die Versicherungssumme sofort bei Abschluss der Versicherung erwerben soll. Dann kann der Versicherte die Police nicht cedieren oder verpfänden, seine Gläubiger können sie ebenso wenig pfänden, der über sein Vermögen verhängte Konkurs ist ohne Wirkung auf den Anspruch des Begünstigten. Unterlassung der Prämienzahlung oder Selbstmord innerhalb der Karenzzeit bringt auch hier das Recht der Familie zum Untergang.

II. Mit dem Tode des Versicherten erwirbt der Begünstigte, also in unserm Fall die Familie, das Recht auf die Versicherungssumme und zwar unmittelbar, nicht aus dem Nachlass (Planck, S. 111). Die Familie kann also die Erbschaft ausschlagen und trotzdem den Anspruch auf die Versicherungssumme geltend machen (s. Ehrenberg, S. 395).

1. Daraus folgt, dass die Rechtssätze, die für die Haftung der Erben und der Vermächtnisnehmer gelten, hier keine Anwendung finden, auch keine analoge, da der Gesetzgeber hier einen von dem Rechtswert durch Erbfolge, Vermächtnis oder Erbvertrag durchaus verschiedenen Rechtserwerb anerkennt (ebenso Hellwig, S. 357. Es ist daher die neuerdings von Brecher, die Interessenkonflikte bez. des Rechts auf die Lebensversicherungssumme, vertretene Ansicht, der Begünstigte hafte wie ein Vermächtnisnehmer, zurückzuweisen).

2. Über den Nachlass des Versicherten wird der Konkurs eröffnet. Kann die Auszahlung der Versicherungssumme an die Familie auf Grund des § 32 der K.-O. (unentgeltliche Verfügungen des Gemeinschuldners im letzten, oder wenn es sich um den Ehegatten handelt, in den beiden letzten Jahren vor der Konkurseröffnung) angefochten werden? Die Ansichten gehen auseinander.

Das Reichsgericht hat in seiner letzten auf das B. G.-B. gestützten Entscheidung vom 3. 6. 1902 (Bd. 51, S. 404) in Übereinstimmung mit seiner bisherigen Rechtsprechung überhaupt das Anfechtungsrecht geleugnet, weil eine Minderung der Masse nicht eingetreten sei, da der Begünstigte das Recht unmittelbar, nicht aus dem Vermögen des Versicherten erwerbe. Dieser Ansicht tritt namentlich Hellwig entgegen, indem er ausführt, die Bezeichnung des Begünstigten sei eine Zuwendung des dem Versprechensempfänger zustehenden Rechts auf die Leistung. Da der Begünstigte das Recht erst mit dem Tode des Versicherten erwerbe, so vollziehe sich auch erst in diesem Augenblicke die Vermögensverschiebung. Die Zuwendung gelte also erst als in dem Augenblick des Todes des Versicherten vorgenommen, und da der Konkurs über den Nachlass in der Regel bald eröffnet werde, sei die Anfechtung aus § 32 der K.-O. gegeben (S. 379). Diese Ansicht bekämpft Ehrenberg mit Recht, indem er ausführt, nicht durch eine Rechtshandlung, sondern durch eine blosse Tatsache, nämlich den Tod des Versicherten, erfolge der Rechtserwerb. Deshalb sei im Sinne des Gesetzgebers zu entscheiden, dass von einer Anfechtung dieser unentgeltlichen Zuwendung nicht die Rede sein könne (S. 400).

Wir gelangen zu folgendem Ergebnis. In der Bezeichnung des Begünstigten liegt eine Zuwendung an denselben, und zwar die Zuwendung des Rechtes auf die Versicherungssumme. Dass diese Zuwendung in der Form erfolgt, dass ein anderer verspricht, die Leistung an den Dritten zu bewirken, derart, dass der Dritte ein unmittelbares Forderungsrecht erwirbt, ändert daran nichts. Es ist also richtig, hier von einer Schmälerung des Vermögens des Versicherten zu sprechen. Wo es sich um eine Versicherung zu gunsten der Familie handelt, erfolgt diese Zuwendung wohl stets unentgeltlich. Die Frage ist nur, in welchem Zeitpunkt die Zuwendung erfolgt. Meines Erachtens ist dieser Zeitpunkt der Augenblick der Bezeichnung des Begünstigten. Freilich erwirbt der Begünstigte zunächst kein Recht, ihm gegenüber ist die Bezeichnung, solange der Versicherte lebt, rechtlich bedeutungslos. Aber verfügt hat trotzdem schon damals der Versicherte über die Forderung, und zwar deshalb, weil es nur der einfachen Tatsache seines Todes bedurfte, um diese Verfügung wirksam zu machen. Freilich konnte der Versicherte seine Verfügung wieder umstossen, aber, und darin liegt der Schwerpunkt, er hat es nicht getan.

Auch deshalb ist die Zuwendung nicht anfechtbar, weil der Versicherte unterlassen hat, die Bezeichnung des Begünstigten zu widerrufen, da der Versicherte nicht verpflichtet ist, die Versicherungssumme für seinen Nachlass zu erwerben (Petersen und Kleinfeller, Kommentar zur K.-O., S. 181, O.-L.-G. Hamburg, 28. 6. 1898, Zeitschr. f. d. ges. Versicher.-Wissenschaft, Bd. 2, S. 102).

Aus dem vorhergehenden folgt: Ist der Versicherungsvertrag erst ein bezw. zwei Jahre vor der nach dem Tode des Versicherten erfolgenden Konkurseröffnung abgeschlossen, bezw. erst in dieser Zeit die Bezeichnung der Frau und Kinder als Begünstigte vorgenommen worden, so steht den Gläubigern das Anfechtungsrecht aus § 32 der K.-O. zu, andernfalls nicht. War schon vorher ein andrer Begünstigter bezeichnet, z. B. ein Neffe und erst später die Ehefrau, so gilt als Zeitpunkt der unentgeltlichen Verfügung die erste Bezeichnung des Begünstigten, nicht etwa die spätere.

Die Prämienzahlungen der beiden letzten, bezw. des letzten Jahres können nicht angefochten werden. Sie stellen sich nicht als eine unentgeltliche Verfügung, sondern als Vertragserfüllung gegenüber dem Versicherer

dar. Sie sind auch nicht etwa in Gestalt der Versicherungssumme in das Vermögen des Begünstigten gelangt, da kein innerer Zusammenhang zwischen der einzelnen Prämienzahlung und der an den Begünstigten zu leistenden Versicherungssumme besteht. (Ebenso Hellwig, S. 339, Petersen und Kleinfeller, S. 181, O.-L.-G. Stuttgart, 16. 5. 1902, Assekuranz-Almanach, 1903, S. 159; anderer Ansicht Ehrenberg, S. 400.)

Entspricht dieser Rechtszustand den Anforderungen der Billigkeit? Es wird darauf hingewiesen, dass es nicht recht erscheint, wenn der Versicherte zwar bis zu seinem Tode über die Versicherungsforderung frei verfügen kann, sie also für ihn ein verwertbares Vermögensgut ist, nach seinem Tode aber seine Gläubiger keinen Anspruch auf die Versicherungssumme haben, wenigstens in der Mehrzahl der Fälle, ja der Versicherte durch Selbstmord den Gläubigern direkt dieses Gut entziehen kann. Gewiss ist es eine sittliche Pflicht, für die Familie zu sorgen, aber das darf nicht auf Kosten der Gläubiger geschehen. So richtig nun dies auch ist, so erscheinen mir doch die Änderungsvorschläge, die man gemacht hat, nicht zweckentsprechend. Man will zwar der Familie ein unentziehbares Recht auf die Versicherungssumme einräumen, aber nur in dem Fall, dass auch der Versicherte schon bei Lebzeiten sich des Verfügungsrechtes über die Versicherungsforderung begibt (s. die Vorschläge bei Ehrenberg und Brecher). Aber gerade diese Möglichkeit der vielfachen Verwertung der Police hat die grosse Verbreitung der Lebensversicherung gefördert. Es erscheint mir daher nicht richtig, durch einen Akt der Gesetzgebung in diese Entwicklung hemmend einzugreifen.

Der Entwurf eines Gesetzes über den Versicherungsvertrag nimmt keine Stellung zu dieser wichtigen Frage, und doch wird es nötig sein, dass der Gesetzgeber ihr angesichts der sich widerstreitenden Meinungen näher tritt. Ich glaube, es lässt sich hier ein Mittelweg finden, wenn man die oben vorgeschlagene Regelung des Falles, dass bei Lebzeiten des Versicherten über sein Vermögen der Konkurs eröffnet wird, analog anwendet. Die Konkursgläubiger hätten demnach einen Anspruch gegen die Begünstigten auf Zahlung derjenigen Summe, welche der Versicherer als Rückkaufspreis im Augenblick des Todes des Versicherten gezahlt hätte. Sie würden also ebenso gestellt sein, wie wenn der Konkurs schon bei Lebzeiten des Versicherten über sein Vermögen eröffnet worden wäre. Sie erhalten nicht mehr, als der Höchstwert der Versicherungsforderung betrug, solange diese noch im Vermögen des Versicherten war. Die Familie muss sich allerdings hier eine Beeinträchtigung ihrer Interessen gefallen lassen, aber sie verliert nicht mehr, als sie auch bei einem vorher ausgebrochenen Konkurs verloren hätte.

RÉSUMÉ.

LA PROTECTION DE LA FEMME ET DES ENFANTS BÉNÉFICIAIRES DANS LA POLICE D'ASSURANCE.

Par Dr. Paul Moldenhauer.

Pourvoir la famille, — c'est le but principal de l'assurance sur la vie, — viagère et combinée. Conséquemment, le contrat d'assurance est conclus le plus souvent comme un contrat de payement au tiers, — c'est à dire, la femme et les enfants de l'assuré sont nommés les bénéficiaires dans la police.

Cette prévoyance peut devenir vaine:

I. Du vivant de l'assuré

1. par lui-même,

a. si le contrat devient contestable par la faute de l'assuré;
b. par cession, ou par la nomination d'un autre bénéficiaire;
c. si la police est faite hypothéquée, ou donnée en gage, ou changée à police sans prime.

Aux derniers deux cas la précaution n'est pas suspendue, mais seulement réduite.

2. par le tiers,
   a. la police est saisie par les créditeurs de l'assuré; les créditeurs n'ont pas le droit d'exiger le payement du rachat, sinon l'assuré rénonce à l'assurance;
   b. le gérant du concours des créanciers de l'assuré est autorisé à disposer de la police, et conséquemment à en exiger le rachat.

Il est proposé,—de lege ferenda,—que la police soit rendue à la famille de l'assuré, si la même somme est payée pour laquelle l'assuré aurait donné la police au rachat.

II. Après le décès de l'assuré:
1. Il n'y a point de garantie des bénéficiaires, comme celle des héritiers et des légataires;
2. Dans le cas de décès de l'assuré le bien est remis entre les mains d'un syndie et le payement de l'assurance à la famille peut être contesté quand le contrat d'assurance a été fait durant l'année (ou deux respectivement), avant la déclaration de la faillite, ou seulement quand la femme et les enfants ont été nommés bénéficiaires pendant cette période.

ABSTRACT.

THE PROTECTION OF WIVES AND CHILDREN AS BENEFICIARIES IN A LIFE INSURANCE POLICY.

By Dr. Paul Moldenhauer.

The chief aim of a life insurance, whether in a life or in an endowment policy, is to provide for the family. Very often, therefore, the life insurance contract assumes the form of a contract of payment to a third person—the wife and the children, or either, being named in the policy as beneficiaries.

This provision may become void:

I. During the life of the insured,

1. By the act of the insured himself,

(a) When the contract becomes contestable through the fault of the insured.

(b) By assignment or by naming another beneficiary.

(c) By hypothecation, taking a loan, or changing the policy to a paid-up policy. In the last two cases the provision is not suspended, but merely diminished.

2. By third persons.

(a) The policy may be seized by the creditors of the insured. As long as the insured does not give up the insurance, the creditors have no right to demand payment of the amount allowed for surrendering the policy.

(b) When the estate of the insured passes into the hands of a receiver, the latter can dispose of the policy and demand payment for the surrender of the same.

It is proposed—*de lege ferenda*—to grant against payment of the surrender to the company—the policy of the family.

II. After the death of the insured.

1. There is no liability of the beneficiaries analogous to that of the heirs and legatees.

2. If after the death of the insured the estate passes into the hands of a receiver, payment of the insurance to the family can be contested when the insurance contract was made within the last year (or two years respectively) before declaration of bankruptcy—or when the wife and children were only named as beneficiaries within this time.

It is proposed—*de lege ferenda*—that the creditors may claim the sum which would have been paid by the company, at the moment of death of the insured, for the surrender of the policy.

ON EXISTING LEGISLATION FOR THE PROTECTION OF WIVES AND CHILDREN, AS LIFE ASSURANCE BENEFICIARIES, AGAINST THE CLAIMS OF CREDITORS.

BY

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The only Acts of Parliament dealing directly with this subject are the Married Women's Property Acts of 1870 and 1882, which apply to England, Wales and Ireland, and the Married Women's Policies of Assurance (Scotland) Act, 1880. The benefit of assurances may otherwise be secured to the wives and families of the assured by including policies in settlements, in which case their disposition would be regulated by the terms of the trust, but in this respect policies do not differ from any other form of property, and the subject of settlements does not fall within the scope of this note.

The following are the assurance clauses of the Acts of 1870 and 1882, set out in parallel columns to facilitate a comparison. Section 22 of the Act of 1882 repeals the Act of 1870, provided that such repeal shall not affect any act done or right acquired while the earlier Act was in force.

Married Women's Property Act, 1870. Section 10.

A married woman may effect a policy of insurance upon her own life or the life of her husband for her separate use, and the same and all benefits thereof, if expressed on the face of it to be so effected, shall enure accordingly, and the contract in such policy shall be as valid as if made with an unmarried woman.

A policy of insurance effected by any married man on his own life, and expressed upon the face of it to be for the benefit of his wife or of his wife and children, or any of them, shall enure and be deemed a trust for the benefit of his wife for her separate use, and of his children, or any of them, according to the interest so expressed, and shall not, so long as any object of the trust remains, be subject to the control of the husband or to his creditors, or form part of his estate. When the sum secured by the policy becomes payable, or at any time previously, a trustee thereof may be appointed by the Court of Chancery in England or in Ireland according as the policy of insurance was effected in England or in Ireland, or in England by the judge of the County Court of the district, or in

Married Women's Property Act, 1882. Section 11.

A married woman may by virtue of the power of making contracts hereinbefore contained effect a policy upon her own life or the life of her husband for her separate use; and the same and all benefit thereof shall enure accordingly.

A policy of assurance effected by any man on his own life, and expressed to be for the benefit of his wife, or of his children, or of his wife and children, or any of them, or by any woman on her own life, and expressed to be for the benefit of her husband, or of her children, or of her husband and children, or any of them, shall create a trust in favour of the objects therein named, and the moneys payable under any such policy shall not, so long as any object of the trust remains unperformed, form part of the estate of the insured, or be subject to his or her debts: Provided, that if it shall be proved that the policy was effected and the premiums paid with intent to defraud the creditors of the insured, they shall be entitled to receive, out of the moneys payable under the policy, a sum equal to the premiums so paid. The insured may by the policy, or by

Section 10.—Continued.

Ireland by the Chairman of the Civil Bill Court of the division of the County, in which the insurance office is situated, and the receipt of such trustee shall be a good discharge to the office. If it shall be proved that the policy was effected and premiums paid by the husband with intent to defraud his creditors, they shall be entitled to receive out of the sum secured an amount equal to the premiums so paid.

Section 11.—Continued.

any memorandum under his or her hand, appoint a trustee or trustees of the moneys payable under the policy, and from time to time appoint a new trustee or new trustees thereof, and may make provision for the appointment of a new trustee or new trustees thereof, and for the investment of the moneys payable under any such policy. In default of any such appointment of a trustee, such policy, immediately on its being effected, shall vest in the insured and his or her legal personal representatives, in trust for the purposes aforesaid. If, at the time of the death of the insured, or at any time afterwards, there shall be no trustee, or it shall be expedient to appoint a new trustee or new trustees, a trustee or trustees or a new trustee or new trustees may be appointed by any court having jurisdiction under the provisions of the Trustee Act, 1850, or the Acts amending and extending the same. The receipt of a trustee or trustees duly appointed, or, in default of any such appointment, or in default of notice to the insurance office, the receipt of the legal personal representative of the insured shall be a discharge to the office for the sum secured by the policy, or for the value thereof, in whole or in part.

The Act of 1880, applying only to Scotland, is as follows:

Married Women's Policies of Assurance (*Scotland*) *Act, 1880. Section 1.*—A married woman may effect a policy of assurance, on her own life or on the life of her husband, for her separate use; and the same and all benefit thereof, if expressed to be for her separate use, shall, immediately on being so effected, vest in her, and shall be payable to her, and her heirs, executors, and assignees, excluding the jus mariti and right of administration of her husband, and shall be assignable by her either inter vivos or mortis causa without consent of her husband; and the contract in such policy shall be as valid and effectual as if made with an unmarried woman.

Sec. 2.—A policy of assurance effected by any married man on his own life, and expressed upon the face of it to be for the benefit of his wife, or of his children, or of his wife and children, shall, together with all benefit thereof, be deemed a trust for the benefit of his wife for her separate use, or for the benefit of his children, or for the benefit of his wife and children; and such policy, immediately on its being so effected, shall vest in him and his legal representatives in trust for the purpose or purposes so expressed, or in any trustee nominated in the policy, or appointed by separate writing duly intimated to the assurance office, but in trust always as aforesaid, and shall not otherwise be subject to his control, or form part of his estate, or be liable to the diligence of his creditors, or be revocable as a donation, or reducible on any ground of excess or insolvency: And the receipt of such trustee for the sums secured by the policy, or for the value thereof, in whole or in part, shall be a sufficient and effectual discharge to the assurance office: Provided always, that if it shall be proved that the policy was effected and pre-

miums thereon paid with intent to defraud creditors, or if the person upon whose life the policy is effected shall be made bankrupt within two years from the date of such policy, it shall be competent to the creditors to claim repayment of the premiums so paid from the trustee of the policy out of the proceeds thereof.

The history of the insurance clauses in the Act of 1870 is not very clear. They appear to have been inserted when the bill was in committee. At first sight it is difficult to see why policies of assurance should be more favored than any other class of investment, and the reason is probably to some extent a sentimental one. The act has been called a "poor man's act," and was, no doubt, framed principally to encourage life assurance as a family provision in that large section of the community among the members of which settlements for family protection are rare.

The Act of 1880, which deals exclusively with life assurance, was prepared and promoted by the Association of Managers of the Scottish Life Offices. The object of the act was to secure to residents in Scotland equal facilities for effecting settlement policies as were enjoyed in the other parts of the United Kingdom under the 1870 act, and the framers of the later act, having the benefit of the experience gained under the working of the 1870 act, were able to modify the more inconvenient provisions therein contained.

On the 1st of January 1883, the Married Women's Property Act, 1882, came into force. This act was passed in order to amend and consolidate the law relating to the property of married women. It repealed the 1870 act, but not retrospectively, and re-enacted, in an improved and extended form, the assurance clauses of the 1870 act.

In comparing the 1870 and 1882 acts it will be found that the principal differences are as follows:

In addition to the powers already conferred by the 1870 act, it is expressly enacted by the 1882 legislation that:

(1) A husband may insure his own life for the benefit of his children only, to the exclusion of the wife. It is doubtful whether this power was conferred by the 1870 act.

(2) A woman may insure her own life for the benefit of her husband, or her children, or her husband and children, or any of them.

(3) The earlier act speaks of a married man, while the wording of the 1882 act would include a *widower or widow*. It has even been suggested that a bachelor might effect a policy for the benefit of a possible wife and children, but it would be unsafe to presume that the 1882 act overrides the provisions of the Gambling Act in this respect, although policies are believed to have been so issued.

(4) Under the 1882 act there is considerable simplification in the appointment of trustees, and a provision is inserted that in default of appointment of a trustee, or notice of such appointment to the office, the policy shall vest in the insured or his or her legal representatives in trust for the purposes for which the policy was effected.

(5) Under the 1870 act a direct reference to the act must appear on the face of the policy. The 1882 act makes this unnecessary.

It will be noticed that all three acts make a provision for the protection of creditors, should the policy have been effected with the intent of defrauding them. The 1870 and 1882 acts make it only necessary to prove intention to defraud and do not impose on the

creditors any time limit. The 1880 act gives the creditors the right to claim only in the event of the bankruptcy of the life assured (that is, the person effecting the assurance) within two years. The provisions of the Scotch Act, though larger than the earlier English Act of 1870, do not confer such full powers of assurance as those of the Act of 1882; for it will be noticed that the 1880 act does not give a married woman the power to insure her life for the benefit of her husband, or her husband and children, or her children.

RÉSUMÉ.

SUR LES LOIS ACTUELLEMENT EN VIGUEUR POUR LA PROTECTION DES ÉPOUSES ET DES ENFANTS, EN TANT QUE BÉNÉFICIAIRES D'ASSURANCES SUR LA VIE, CONTRE LES RÉCLAMATIONS DES CRÉANCIERS.

PAR W. P. PHELPS.

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1. Réfère aux Lois du Parlement qui traitent du sujet.
2. Texte complet des Clauses de ces Lois ayant trait aux assurances.
3. Court aperçu des Clauses de ces Lois ayant trait à l'assurance sur la vie.
4. Comparaison des dispositions des diverses Lois.
5. Réfère aux clauses insérées dans les Lois pour la protection des créanciers contre des manœuvres frauduleuses.

KURZE NOTIZ.

UEBER DIE GEGENWARTIG IN KRAFT STEHENDEN GESETZE ZUM SCHUTZE VON FRAUEN UND KINDERN ALS LEBENS-VERSICHERUNGS-BENEFICIATE GEGEN ANSPRÜCHE VON GLÄUBIGERN.

VON W. P. PHELPS.

Zusammenfassung des Inhaltes.

1. Bezugnahme auf ein mit diesem Gegenstande sich beschäftigendes Parlaments-Gesetz.
2. Completer Text der Versicherungs-Clauseln des Gesetzes.
3. Kurze Geschichte der Lebens-Versicherungs-Clauseln des Gesetzes.
4. Vergleich der Vorschriften der verschiedenen Gesetze.
5. Bezugnahme auf die Clauseln des Gesetzes zum Schutze der Gläubiger gegen Betrug.

ABOUT THE RIGHTS OF A WIFE AND CHILDREN AS BENEFICIARIES UNDER A LIFE ASSURANCE POLICY, ESPECIALLY WITH REGARD TO THE CREDITORS OF THE PERSON INSURED.

BY

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We know that up to the present there exists in Holland no legislation affecting the life assurance contract or for the regulation of life assurance business. The Commercial Code, indeed, subparagraphs 302-308, contains some instructions concerning the life assurance agreement, but they are so unsatisfactory that they have long since been ignored in practice.

Under the circumstances, it stands to reason that, in Holland, there are no special legal regulations for the protection of the rights, under the policy, of the wife and children of the assured. If, therefore, I have nevertheless chosen this subject for treatment, it is simply because I want to take a somewhat broader view of the matter, for I am not going to answer the question of what special legal stipulations exist in this respect, but will simply explain the legal position of a married woman and her children according to Dutch law, as regards the assurance contract entered into by her husband on her behalf. This, I think, will also answer the purpose of the committee of organization, as an elucidation of the conditions in question, in a country where no special provision has been made in the matter, may be of some interest to other countries as well.

I may say at once, that the application of *general* laws to special cases will lead to differences of opinion, when those special cases appear entirely unprovided for by the law.

Even the juridical nature of the assurance agreement has not been settled by law in Holland. The lawyers are, therefore, obliged to compare the peculiar features of this special contract with those of other well-known general forms of contracts to come to a clear understanding on the subject. And it follows, that in making these comparisons there is room for different views. Such a difference of opinions exists in Holland, for instance, about the question as to whether the assurance agreement should be taken as a RECIPROCAL CONTRACT (in which case the duty of paying out the amount insured and that of paying the premiums should be looked upon as reciprocal engagements), or should be considered to constitute a contract imposing a one-sided obligation of the insurer (in which case the payment of premiums would have to be taken as CONDICIO). And although I cannot be expected to treat this and similar general questions exhaustively—this would entail a very voluminous work—yet I shall be obliged to touch upon them in some cases, as closely affecting the subject under consideration. In doing so, I shall, however, have to put in the foreground my own views, which, moreover, are being shared by the majority of business and legal men in Holland, paying but little attention to the opinions of opponents, the available

space being too limited for thorough discussion, which besides would be out of place.

I.

In the first place, I will treat of the position of the beneficiated wife or children as regards the assurance contract WHILE IT IS RUNNING, i.e. before the amount assured has become due. As this position is governed by the same rules as are generally applied in defining the rights of ANY OTHER BENEFICIATED PERSON, we need only consider these from the special point of view of a wife and children, in order to come to a clear understanding.

To begin with, it should be stated that a wife or child can only insure their right to the future payment of the amount assured BY TAKING PERSONAL ACTION. And this because no special law provides for this right. Art. 1353 of the Dutch Civil Code, reads:

"Provision may also be made in favor of a third party by a stipulation to that effect or a grant made to somebody else, inserted in the agreement one enters into. The party making such stipulation has no right to cancel it as soon as the third party has notified the intention of availing himself of the privilege."

According to the opinion of the majority of the Dutch lawyers the life assurance contract contains a similar stipulation in favor of third parties, for the person insuring his life makes an agreement in his own name (he himself having to pay the premiums), in this case with the assurance company, in the interest of a third party, the beneficiary. And he can only take the benefits away from the person so beneficiated, if the latter has not declared to accept them.

When therefore, in a policy, the wife or children of the insured are beneficiated, they can deprive the insured, by means of a special acceptance of the assignment, of the right of transferring these benefits to somebody else. This precaution, however, can only be taken if the third party BE AWARE of the existence of an assurance policy. As far as Holland is concerned, I believe, however, that against the many cases in which the head of a family insures his life to the knowledge of his family, there are several instances in which he leaves them in ignorance of the fact of his having insured his life. In this case his relatives can therefore do nothing to protect their rights, for the simple reason that they do not know they have any rights. On the other hand, we must not forget that—even when they know there is an agreement—they will very seldom send in a notification of their definitely insisting upon their rights, for this always implies a sort of want of confidence in the *paterfamilias,* to which they will not easily have recourse. Only a specific legal regulation would give them perfect protection in this respect, without their being in any way obliged to take steps that might hurt the feelings of the head of the family. I leave entirely out of the question whether a married woman can notify this unconditional acceptance WITHOUT THE HUSBAND'S CO-OPERATION. Should this question be answered in the negative, then her right to the amount assured, even in cases in which she has the greatest interest in safeguarding it, would simply become an imaginary one.

I cannot, therefore, attach much value to this way of protecting the beneficiated wife or children's claim. In the case of children under age there is, moreover, another difficulty. How could they take from the father the right to make an assignment in favor of somebody else, by means of *independent* legal action?

Summa summarum, the insured party's right of giving up the policy as a security to his creditors, seems unlimited as far as the beneficiated wife or children are concerned, except in the unlikely case of the wife or children having notified their acceptance of the assignment on their behalf.

With regard to this subject there still remain two questions to be answered, viz.: First, with reference to the *form* of the notification of acceptance on the part of the wife or children beneficiated. Of course, the wording will be similar to that used in the case of anybody accepting an assignment, but . . . for this very case there is no regular form. One might, therefore, take it for granted that a simple letter from the persons beneficiated, implicitly stating their acceptance, would of itself sufficiently protect the benefits as an inalienable right. It is evident, however, that this sort of interpretations must lead to the greatest confusion, as the acceptance could in this case take place without the assurance company receiving a notification, which might get the latter into difficulties without any fault of their own, by their recognizing an assignment of the benefits, unlawfully made afterwards by the insured. It is only natural that in order to make the acceptance legal, a notification to the company should be made imperative. An analogous case we see where a CESSIO of monetary claims is made, which is equally invalid in law, as far as the debtor is concerned, until he has admitted the *cessio,* or unless it has been brought home to him by legal procedure (Art. 668 of the Civil Code). It has, therefore, been taken for granted, in practice, that a similar acknowledgement, or, failing this, a legal notification of acceptance on the part of the beneficiated party, is necessary to protect the right to the amount assured. The simplest way would seem to be to mark this acceptance on the policy itself and to have this notice "witnessed" by the assurance company. Should the latter refuse to put their signature to it, the legal notification of the acceptance can still be made.

And, finally, there remains the preponderating practical question as to what the position is of the beneficiary (say the wife or children beneficiated), after they have accepted the assignment, in case the creditors are called together by or on behalf of the insured. This position is mainly *defensive,* never *offensive.* According to the opinion of the majority of the Dutch lawyers the right to the surrender value forms part of the assets of the insured. They defend this view by pointing out that only the insured, who has personally entered into an assurance agreement with the company, has the right of cancelling or continuing this agreement. If, on his deciding to have it cancelled, there should be left any rights, for instance that of receiving the surrender value of the policy, it would be logical that he should have the benefit of them, and nobody else. It is, however, understood, in practice—and this, indeed, may be recognized as a right of *usage*—that if the assignment has been formally accepted, the insured cannot avail himself of the right to the surrender value unless the beneficiary authorizes him to do so. Nay, the beneficiated party in this case is entitled to continue the payment of premiums; the company is therefore bound to send him notice in case the insured should fail to continue these payments, and in accordance with the conditions of assurance of many companies they undertake to do so in the most emphatic manner.

From this it would appear that if the assignee of the insured's creditors should wish to surrender the policy to the company, the latter will be obliged to acquaint the wife or children beneficiated—when they

have unconditionally accepted the assignment—with the fact of the payment of premiums having been discontinued. The nominee has then the choice between the following alternatives: either she pays the remaining premiums herself, or she gives her consent to the sale of the surrender value; or, again, she refuses to give this consent, without continuing the payments. In the latter case the sale cannot possibly be effected, and the assurance is then usually continued until the reserve has been exhausted; or, again, the amount of the surrender value is set apart (without any further risk to the company) until it can be paid out to the party who may incontestably prove his title. Even the legal position here described seems to become rather complicated as soon as we deny the wife the right to personally continue the payment of premiums (against the wish of her husband). But *nobody* would surely deny her the right of preventing the sale of the surrender value by dint of refusing her coöperation, for in this case it is not a question of the action of a wife, which requires her husband's acquiescence in order to be legal, but of a simple "*abstinere,*" which in itself renders the sale impossible.

It should also be pointed out that, should a husband, in order to give his wife and children the advantage of a policy with a surrender value, fail to disclose to the assignee in bankruptcy the existence of such an assurance contract, in case of insolvency, he is legally guilty of a punishable action according to Dutch law. For the surrender value of such policy is *part of his assets,* and should, therefore, be included in the assets, in the interests of his creditors, instead of being fraudulently withheld at their expense. It is another question whether there might be cause for the official assignee to continue the policy and even to pay the premiums out of the assets. The whole responsibility then rests with the assignee, and the company can accept the premiums without hesitation.

From the above we may conclude:

(1) That AS LONG AS THE POLICY IS RUNNING the wife or children beneficiated under it are only in a position to protect their right to the benefits as against the creditors if the former have officially accepted the assignment.

(2) That on the one hand this acceptance can only take place with the coöperation of the insured in his capacity of a husband or father.

(3) That, on the other hand, the insistence on the beneficiary rights, in practice and in case the insured (or the official receiver or assignee) refuses his assistance, can only prevent the sale of the policy in favor of the creditors, without securing the purchase or continuance of the assurance contract to the wife or children.

(4) That, therefore, ACCORDING TO DUTCH LAW THE RIGHTS OF THE BENEFICIATED WIFE OR CHILDREN, DURING THE EXISTENCE OF THE ASSURANCE, SEEM TO BE VERY INSUFFICIENTLY DEFINED BY REGULATIONS.

II.

In the second place, the question is: In how much do the interests of the beneficiated wife or children seem to be protected, according to Dutch law, with regard to creditors, *when the amount assured becomes payable?*

In answering this question I shall, in the main, consider the assurance in case of death, because under these circumstances the details of the question become more evident. And the case then resolves itself, in practice, simply into the following question: Does the amount assured, according to Dutch law, form part of the estate of the insured? In that

case the creditors would get the benefit of it and the wife and children would not get anything at all.

But should the question be answered in the negative, it would follow that the wife and children have an independent right to the amount assured and can also uphold this right against the creditors of the insured.

Here we should also observe, that—as there is no special legislation in the interest of a wife and children—the position of the BENEFICIARY in general, in this respect, is also that of the beneficiated wife and children.

And it should then be distinctly stated that the beneficiated QUA TALIS is entitled to the sum assured the moment the insurance is effected, or—to put it in plain language—that the right as beneficiary, entirely apart from the individual beneficiated in each special case, exists the moment the agreement is signed. The majority of Dutch lawyers hold this view, and the "Hooge Raad der Nederlanden" (the highest Dutch court) has upheld it. This right of the beneficiary, it is true, can only be *used* on the death of the assured, but it exists all the same. It may be compared to the *right of possession,* in many respects, which can only be exercised when *assailed.* The words of the French lawyer, Méline, are very much to the point. He says: "Until the capital assured passes from the hands of the company into the hands of the beneficiary, the insurance is dormant." Where one SLEEPS there must also be LIFE. In fact, the beneficiary is the only person, amongst those who are concerned in the contract of life assurance, who can ever claim the right to the capital assured. It is certainly *not* the insured, which is especially evident with insurances in case of death. It is true, the beneficiary can only claim this right after a space of time (i.e. at the demise of the insured), but the existence of this time limit, which may be considered a *Dies,* does not prove that his right has not already existed before. On the contrary, Art. 1304 of the Dutch Civil Code has it explicitly that a *Dies* does not put off the contract itself but only the execution of it for the time being. It follows that the right of the beneficiary begins the moment the assurance agreement is entered into.

As, therefore, the insured has never had a claim on the amount insured, such right cannot form part of his estate, so that the wife and children do not enter into the rights of beneficiary JURE HEREDITARIO, but simply directly by means of the contract made on their behalf, ENTIRELY INDEPENDENT OF EVENTUAL CLAIMS BY CREDITORS ON THE ASSETS OF THE DECEASED INSURED. These creditors can, therefore, never put forward any claim to the capital assured as it is entirely foreign to the estate of the insured, and has never belonged to it.

It should not be forgotten, however, that this unassailable position of the right of beneficiary CANNOT BE UPHELD if the assurance was effected in order to fraudulently curtail the rights of the creditors. Nor is there any clause in this respect in the Dutch laws, but even general principles of equity indicate that the rule applies to the above case. We could quote as an analogous regulation that of the invalidity of grants immediately before the insolvency sets in. It should, however, be remembered that it is not the payment of the amount assured, but only the loss of the premiums that can be regarded as being to the detriment of the creditors. The latter, therefore, can never recoup themselves OUT OF THE CAPITAL ASSURED DIRECT. A legal regulation to that effect would, no doubt, be desirable, and it could be framed on the lines of the English law which contains the following restrictions: "A policy . . . shall

create a trust in favor of the objects therein named, and the moneys shall not form part of the estate of the insured or be subject to his debts, provided that if it shall be proved that the policy was effected and the premiums paid with intent to defraud the creditors of the insured, they shall be entitled to receive OUT OF THE MONEYS PAYABLE UNDER SUCH POLICY, a sum equal to the premiums so paid." (Married Womens' Property Act, 1882.) I should also like to quote here Art. 477 of the Rumenian Commercial Code, which reads: "In case anybody have assured an amount on the life of some person other than himself, to be paid to somebody else, even though he be one of his heirs, the benefits, in case of death or insolvency of the insured, belong exclusively to the party mentioned in the contract; with the exception, however, of the premiums paid which remain subject to the regulations of the Civil Code concerning the obligations, the charges on grants on account in case of bequests, as well as the *invalidity of the measures taken at the expense of the creditors.*"

It should also be mentioned here, that there are some lawyers who consider a life assurance contract, effected by the husband in favor of his wife, to be a grant, and, therefore, want to give the creditors a right to the sum assured. There are many arguments against this view, of which I will only mention the following to-day:

(1) A grant only exists where an explicit acceptance of it has been made; a life assurance, however, assures to the beneficiary the benefits of this favor even without a formal acceptance of it.

(2) Art. 1704 of the Dutch Civil Code, reads: "A grant can only be effected out of the actual possessions of the giver at the time he made it." We have seen, however, that the right to the amount assured can never belong to the insured, and, therefore, does not belong to "his possessions" at the time he contracts an insurance.

(3) Art. 1715 of the Civil Code declares grants between married people during the time of marriage to be invalid. If, therefore, a grant were practically made to the wife in the case of a life assurance, the validity of the contract itself could be contested and nobody would surely think of doing that.

This seems to refute the opinion in favor of the creditors, that the life assurance policy in favor of a married woman should constitute a grant to her by her husband.

THE RIGHT OF THE BENEFICIATED WIFE AND CHILDREN TO THE SUM ASSURED WHEN DUE IS QUITE UNASSAILABLE AS REGARDS THE CREDITORS OF THE INSURED HUSBAND.

I want to draw the attention especially of business men other than Dutch, to one more point. According to Dutch law, the wife is not the heiress (ab intestato) of a husband who has died without leaving a will. When, therefore, "the heirs" of the insured are called the beneficiaries in the policy and no will is found to exist at insured's death, it is exclusively the children, or, failing these, the next of kin of the insured, who are entitled to the amount assured. But when the wife of the insured has been designated as the beneficiary, it is possible that the children will contest the paying out to somebody else of the amount assured on account of unlawful reduction in their rightful patrimony through the payment of premiums.

It is usually assumed that their action can only have a chance of success if the premiums have been paid by the assured out of *his estate* and not out of his INCOME. Such cases, however, will always be very rare.

It follows from what we have said, that according to Dutch law the position of the beneficiary wife and children, as regards the creditors of the insured, as long as the assurance is running, is very unsatisfactory, but becomes very favorable as soon as the sum assured becomes due, indeed, so much so that advantage could be taken of the present state of things to defraud the creditors. It is very much to be desired that the law should step in here and afford some rational and PROPORTIONATE protection to the wife and children without losing sight of the interests of *bona-fide* creditors.

RÉSUMÉ.

DES DROITS DE LA FEMME ET DES ENFANTS COMME BÉNÉFICIAIRES D'UNE POLICE D'ASSURANCE-VIE, NOTAMMENT À L'ÉGARD DES CRÉANCIERS DE L'ASSURÉ.

PAR LE DR. J. VAN SCHEVICHAVEN.

L'auteur commence par expliquer qu'il n'y a pas de législation spéciale en matière d'assurance-vie en Hollande et que, par conséquent, on ne peut traiter des droits résultant du contrat d'assurance pour la femme ou les enfants bénéficiaires que d'un point de vue général, c. à. d. en traitant des droits résultant, pour chaque bénéficiaire d'un contrat d'assurance, d'après les règles du droit général.

Dans la première partie de son travail, l'auteur traite des droits de la femme et des enfants bénéficiaires, *durant le cours de l'assurance.* Il résulte de ses observations: 1) que durant le cours de l'assurance, la femme ou les enfants bénéficiaires ne peuvent maintenir leurs droits vis-à-vis des créanciers du contractant qu'après avoir formellement accepté leur qualité de bénéficiaires; 2) que cette acceptation, dans les cas ordinaires, ne peut avoir lieu sans le concours du mari ou du père; 3) qu'en fait cette acceptation, au cas où le contractant (ou son syndic) s'opposerait à une solution en faveur des bénéficiaires, ne peut qu'empêcher le rachat en faveur des créanciers, sans créer la possibilité de rachat pour les bénéficiaires et sans leur ouvrir l'occasion de continuer l'assurance moyennant le paiement des primes; 4) que par suite, durant le cours de l'assurance, les droits de la femme et des enfants bénéficiaires sont garantis d'une manière absolument insuffisante par les lois hollandaises.

La seconde partie traite des droits de la femme et des enfants bénéficiaires *au moment où la somme assurée sera due* et s'occupe principalement de l'assurance en cas de mort. L'auteur explique que la somme assurée ne forme point partie de la succession du contractant, assuré en cas de mort, et que, en conséquence, les créanciers du contractant décédé n'y peuvent faire valoir aucun droit. Tant la situation des bénéficiaires durant le cours de l'assurance est précaire, tant elle est sûre et inattaquable après l'échéance de l'assurance. Cette sûreté va jusqu'à la possibilité de nuire d'une manière peu équitable aux intérêts des créanciers. Il serait à désirer que la loi créât une protection rationnelle de la femme et des enfants bénéficiaires, sans négliger les droits bien acquis des créanciers.

ÜBER DIE RECHTE DER BEGÜNSTIGTEN FRAU UND KINDER AUS DER LEBENSVERSICHERUNGS-POLICE, SPEZIELL DEN GLÄUBIGERN DES KONTRAHENTEN GEGENÜBER.

Von

DR. JUR. J. VAN SCHEVICHAVEN.

Bekanntlich besteht bis jetzt in Holland weder ein Gesetz zur Regelung der aus dem Lebensversicherungsvertrag hervorgehenden Rechtsverhältnisse, noch ein solches zur Regelung des Lebensversicherungs-

betriebes. Zwar gibt das Handelsgesetzbuch in den Artikeln 302-308 einige Vorschriften bezüglich des Lebensversicherungsvertrages, aber dieselben sind derart gebrechlich, dass sie von der Praxis seit lange einfach ignoriert werden.

Unter diesen Umständen versteht es sich von selbst, dass es in Holland keine speziellen gesetzlichen Vorschriften gibt zur Wahrung der für Weib und Kinder des versicherten Kontrahenten aus der Police hervorgehenden Rechte. Wenn ich dennoch eben diesen Gegenstand zur Behandlung gewählt habe, so ist dies nur eine Folge davon, dass ich denselben etwas breiter aufzufassen gedenke, d. h. ich werde nicht die Frage beantworten, welche spezielle gesetzliche Vorschriften in dieser Hinsicht bestehen, sondern einfach auseinandersetzen, welche die Rechtsstelle der verheirateten Frau und ihrer Kinder nach holländischem Rechte, dem von ihrem Gatten zu ihrem Gunsten kontraktierten Versicherungsvertrag gegenüber, ist. Ich glaube hiermit auch den Intentionen des Organisationskomitees zu entsprechen, nachdem die Auseinandersetzung der diesbezüglichen Verhältnisse in einem Lande, wo der betreffende Gegenstand nicht *speziell* geregelt erscheint, auch für andere Länder einiges Interesse haben kann.

Voraus schicke ich die Bemerkung, dass die Anwendung *allgemeiner* Gesetze auf *spezielle* Gegenstände immer Anlass geben wird zu Meinungsverschiedenheiten, wenn diese speziellen Gegenstände gänzlich ungeregelt sind. Sogar die juridische Natur des Versicherungsvertrages ist in Holland nicht gesetzlich festgesetzt. Der Jurist ist also genötigt, die Eigentümlichkeiten dieses speziellen Vertrages mit denjenigen der ihm bekannten *allgemeinen* Vertragsformen zu vergleichen, wenn er bezüglich dieser Frage zur Klarheit kommen will. Und dass es bei einer derartigen Vergleichung Platz gibt für verschiedene Auffassungen, ist selbstverständlich. Eine derartige Meinungsverschiedenheit besteht in Holland z. B. über die Frage, ob der Lebensversicherungsvertrag als ein *Gegenseitigkeits-Vertrag* (wobei also die Verpflichtung zur Auszahlung des versicherten Betrages und diejenige zur Prämienzahlung als *Gegenleistungen* einander gegenüberstehen) oder als ein, eine einseitige Verpflichtung des Versicherers schöpfender Vertrag (wobei also die Prämienzahlung als *conditio* aufzufassen wäre) betrachtet werden soll. Obwohl es nun nicht in meiner Absicht liegen kann, diese oder derartige allgemeine Fragen erschöpfend zu behandeln — mein Aufsatz würde sich in diesem Falle zu einer viel zu umfangreichen Arbeit ausdehnen —, werde ich doch nicht immer umhin können, dieselben oberflächlich zu berühren, eben weil sie mit dem zu behandelnden Stoffe zusammenhängen. Ich werde dabei aber meine eigenen Ansichten — die übrigens von der Mehrzahl der Fachleute und Juristen in Holland geteilt werden — immer in den Vordergrund stellen müssen und den gegnerischen Betrachtungen nur wenig Rechnung tragen können, weil der mir gebotene Raum für eine eingehende Polemik zu beschränkt ist, und diese übrigens hier auch weniger am Platze wäre.

I.

In erster Linie werde ich handeln über das Verhältnis des begünstigten Weibes oder der begünstigten Kinder zum Versicherungsvertrag *während des Bestandes desselben*, d. h. bevor der versicherte Betrag fällig geworden. Nachdem dieses Verhältnis von denselben Regeln beherrscht wird, welche im Allgemeinen bei der Bestimmung der Rechte *eines jeden Begünstigten* ins Gewicht fallen, braucht man diese Rechte nur vom speziellen Standpunkt des Weibes oder der Kinder zu betrachten, um diesbezüglich ins Reine zu kommen.

Im Vordergrund steht, dass Weib oder Kind sein Recht auf die zukünftige Auszahlung des versicherten Betrages *nur mittels seines eigenen Eingreifens* sichern kann. Es ist dies eben eine Folge davon, dass kein spezielles Gesetz ihm dieses Recht sichert. *Art. 1353* des niederländischen Zivil-Gesetzbuches lautet wie folgt:

„Man kann auch im Interesse eines Dritten etwas bedingen, wenn ein Vertrag, den man für sich selbst abschliesst, oder eine Schenkung, die man einem andern macht, eine derartige Bestimmung enthält. Wer eine derartige Bestimmung gemacht hat, kann dieselbe nicht mehr rückgängig machen, sobald die dritte Person erklärt hat, dass sie von derselben Gebrauch zu machen beabsichtigt."

Nach der Auffassung der Mehrzahl der holländischen Juristen enthält der Lebensversicherungsvertrag eine derartige Bestimmung zu Gunsten eines Dritten. Denn der Kontrahent schliesst für sich selbst einen Vertrag ab (er selbst soll ja die Prämienzahlung leisten), u. z. mit der Versicherungsgesellschaft im Interesse eines Dritten: des Begünstigten. Nur dann kann er diesem die Begünstigung wieder entziehen, wenn derselbe *nicht* erklärt hat, dieselbe anzunehmen.

Wenn also in einer Police die Frau oder die Kinder des Kontrahenten begünstigt werden, so können sie dem Kontrahenten mittels ausdrücklicher Annahme dieser Begünstigung das Recht entziehen, einen andern Begünstigten an ihre Stelle zu setzen. Diese Weise zur Wahrung ihres Rechtes kann aber nur dann in Anwendung gebracht werden, wenn sie des Bestehens der Versicherungspolice *auch wirklich kundig sind.* Ich weiss nicht mit Bestimmtheit zu sagen, ob dies in andern Ländern gewöhnlich der Fall ist. Was Holland anbelangt, glaube ich aber, dass den vielen Fällen, worin der Hausvater sich mit Mitwissen seiner Familie versichert, andere, jedenfalls auch zahlreiche, gegenüberstehen, worin er die Seinigen von einer abgeschlossenen Versicherung unkundig lässt. In derartigen Fällen *können* also seine Angehörigen nichts unternehmen zur Wahrung ihrer Rechte, aus dem einfachen Grunde, da sie nicht wissen, dass sie diese Rechte besitzen. Andererseits darf man nicht aus dem Auge verlieren, dass — selbst wenn sie mit dem Bestande der Versicherung bekannt sind — sie doch nur in den wenigsten Fällen zur ausdrücklichen Annahme ihrer Rechte schreiten werden. Denn es liegt darin immer ein gewisser Beweis des Misstrauens dem Hausvater gegenüber, wozu sie sich nicht sobald entschliessen werden. Nur eine ausdrückliche gesetzliche Bestimmung könnte ihnen die vollkommenste Sicherheit in dieser Hinsicht geben, ohne dass ihrerseits irgendwelche Schritte zu unternehmen wären, welche den Familienvater verletzen könnten.

Ich lasse hier noch völlig ausser Betracht die Frage, ob die verheiratete Frau *ohne Mitwirkung des Gatten selbst* die ausdrückliche Annahme vornehmen kann. Sollte man diese Frage jedenfalls im verneinenden Sinne beantworten, so wird sich ihr Recht auf die Versicherungssumme eben in denjenigen Fällen, worin sie das grösste Interesse zur Wahrung desselben hat, als völlig illusorisch darstellen.

Dieser Weise zur Wahrung der Rechte der begünstigten Frau oder des begünstigten Kindes kann ich daher nur einen geringen Werth beilegen. Bei minorennen Kindern steht man überdies noch vor einer andern Schwierigkeit. Wie könnten diese mittels einer *selbständigen* Rechtshandlung ihrem Vater, der sie eben in Rechten vertreten muss, sein Recht zur Anweisung eines neuen Begünstigten entziehen?

Summa summarum erscheint das Recht des Kontrahenten, die Police seinen Gläubigern als Pfand zu überlassen, der begünstigten Frau

oder den begünstigten Kindern gegenüber unbeschränkt, ausser in dem unwahrscheinlichen Falle, dass die Frau oder die Kinder das Begünstigungsrecht angenommen haben.

Es bleiben mit Bezug auf diesen Gegenstand noch zwei Fragen zur Beantwortung übrig, u. z. erstens diejenige, welche sich auf *die Form* der Annahme seitens der begünstigten Frau oder Kinder bezieht. Natürlich wird die Art und Weise, worauf diese Annahme stattfinden soll, die nämliche sein, welche *jeder* Begünstigte zu diesem Zwecke in Acht zu nehmen hat, aber .... eben darüber fehlt jede Vorschrift. Man könnte also annehmen, dass schon ein einfacher Brief seitens der begünstigten Partei, woraus *implicite* die Annahme hervorgehen würde, ihr schon an und für sich die Begünstigung als ein unwiderrufliches Recht sichern sollte. Es ist aber evident, dass derartige Auffassungen zu dem grössten Wirrwarr Anlass geben würden, nachdem die Annahme in diesem Falle stattfinden könnte, ohne dass die Versicherungsgesellschaft davon unterrichtet wäre und dieselbe also durch Anerkennung einer später vom Kontrahenten widerrechtlich vorgenommenen Übertragung des Begünstigungsrechtes ohne ihr Verschulden in Schwierigkeiten gerathen könnte. Dass für die Rechtsgiltigkeit der Annahme die Bekanntgabe derselben an die Gesellschaft gefordert werden muss, liegt übrigens in der Natur der Dinge. Ein analoger Fall lässt sich bei der *Cession* von Schuldforderungen konstatieren, welche ebenfalls dem Schuldner gegenüber nicht rechtsgiltig sein kann insolange er dieselbe nicht anerkannt hat oder ihm dieselbe nicht auf gerichtlichem Wege bezeichnet wurde (Art. 668 des Zivil-Gesetzbuches). Die Praxis hat daher gewöhnlich angenommen, dass diese Anerkennung, oder — wenn dieselbe nicht erfolgen sollte — die gerichtliche Bekanntgabe der Annahme seitens der begünstigten Partei für die sichere Wahrung ihres Rechtes auf die Versicherungssumme unbedingt notwendig ist. Am einfachsten erscheint es, dass die Annahme auf der Police selbst verzeichnet und diese Notiz von der Versicherungsgesellschaft schriftlich visiert wird. Sollte dieselbe dieses Visum verweigern, so kann immer noch die gerichtliche Bekanntgabe der Annahme erfolgen.

Zum Schlusse muss noch die vorwiegend praktische Frage erörtert werden, welche Stelle der Begünstigte (resp. die begünstigte Frau oder die begünstigten Kinder) nach erfolgter Annahme der Begünstigung im Falle der Eröffnung des Konkurses über den Kontrahenten den Gläubigern gegenüber einnimmt. Diese Stelle ist in der Hauptsache *defensiv,* nicht *offensiv.*

Die Mehrzahl der niederländischen Juristen stellt sich auf den Standpunkt, dass das Recht des Rückkaufes ein Vermögensteil des Kontrahenten bildet. Sie begründen diese Ansicht, indem sie hervorheben, dass nur der Kontrahent, der selbständig den Versicherungsvertrag mit der Gesellschaft abschliesst, das Recht hat, über die Aufhebung oder die Fortführung dieses Vertrages zu entscheiden. Wenn, im Falle er sich zur Aufhebung desselben entschliesst, aus der Police noch irgend welche Rechte — z. B. das Recht auf Rückkauf — hervorgehen sollte, so ist es nur logisch, dass diese *ihm* und keinem Anderen zu Gute kommen. Die Praxis nimmt aber an — und man kann dies gewiss schon als *Gewohnheitsrecht* acceptieren —, dass, wenn die Begünstigung ausdrücklich angenommen wurde, der Kontrahent von seinem Rückkaufsrecht keinen Gebrauch machen kann, wenn der Begünstigte ihn dazu nicht ermächtigt. Auch steht dem Begünstigten in diesem Falle das Recht zu, die Prämienzahlung weiterzuführen; die Gesellschaft ist daher verpflichtet, ihn von der Einstellung derselben seitens

des Kontrahenten in Kenntnis zu setzen, und nach den Versicherungsbedingungen mehrerer Gesellschaften übernehmen sie diese Verpflichtung auch in formellster Weise.

Aus dem hier Gesagten geht hervor, dass, wenn der Konkursverwalter des Kontrahenten die Police der Gesellschaft zum Rückkauf anbietet, diese die begünstigte Frau oder die begünstigten Kinder — wenn dieselben die Begünstigung ausdrücklich acceptieren — von der Einstellung der Prämienzahlung in Kenntnis zu setzen hat. Es steht der Begünstigten dann folgende Wahl frei: entweder sie zahlt selbst die weiteren Prämien, oder sie gibt ihre Genehmigung zum Rückkauf, oder doch sie verweigert diese Genehmigung ohne die Prämienzahlung weiter zu führen. Im letzten Falle kann der Rückkauf überhaupt nicht stattfinden, und wird gewöhnlich die Versicherung dann bis zur völligen Aufzehrung der Reserve in Stand gehalten oder doch die Rückkaufssumme (unter Aufhebung des Risikos für die Gesellschaft) reserviert, bis sie vom unstreitig dazu Berechtigten in Empfang genommen werden kann. Auch die hier behandelten Rechtsverhältnisse erscheinen noch mehr kompliziert, sobald man der Frau die Befugnis zur selbständigen Weiterführung der Prämienzahlung (gegen den Willen ihres Mannes) abspricht. Gewiss aber wird man ihr *nie* die Befugnis absprechen können, mittels Verweigerung ihrer Mitwirkung dem Rückkauf vorzubeugen; denn in diesem Falle gilt es nicht eine *Handlung* der Frau, welche, um rechtskräftig zu sein, der Mitwirkung des Mannes bedarf, sondern ein einfaches *„abstinere,"* das an und für sich den Rückkauf unmöglich macht.

Es muss noch hervorgehoben werden, dass der Mann, der, um seiner Frau und seinen Kindern die Vorteile einer bestehenden rückkaufsfähigen Versicherung zu erhalten, im Falle seines Konkurses dem Konkursverwalter gegenüber über diese Versicherung schweigt, nach holländischem Recht sich einer strafbaren Handlung schuldig macht. Denn der Rückkaufswert einer derartigen Versicherung *gehört zu seinem Vermögen* und soll daher im Interesse der Gläubiger der Konkursmasse zugefügt werden, wenn nicht in strafbarer Weise diesen Gläubigern ein Schaden zugefügt werden soll. Eine andere Frage ist es, ob keine Ursache vorhanden sein kann, welche dem Konkursverwalter Anlass dazu gibt, die Versicherung aufrecht zu erhalten und sogar die Prämie aus der Konkursmasse zu zahlen. In der Praxis geschieht dies sehr oft. Die volle Verantwortlichkeit fällt dann auf den Konkursverwalter, und die Gesellschaft kann die Prämienzahlung ruhig entgegennehmen.

Aus dem oben angeführten geht hervor:

1. dass *während des Bestandes der Versicherung* der begünstigten Frau oder den begünstigten Kindern nur *dann* die Möglichkeit gewährt ist, das Begünstigungsrecht den Gläubigern gegenüber zu handhaben, wenn sie dasselbe ausdrücklich angenommen;

2. dass einerseits diese Annahme gewöhnlich nur mit Mitwirkung des Kontrahenten in seiner Eigenschaft als Gatten oder Vater geschehen kann;

3. dass andererseits die Handhabung des Begünstigungsrechtes für die Praxis, und im Falle der Kontrahent (resp. der Konkursverwalter) seine Mitwirkung verweigert, nur die Unmöglichkeit des Rückkaufes im Interesse der Gläubiger herbeiführt, nicht aber die Möglichkeit des Rückkaufes oder der Weiterführung der Versicherung für die Frau oder die Kinder;

4. dass also *nach holländischem Rechte während des Bestandes der Versicherung die Rechte der begünstigten Frau oder der begünstigten Kinder in entschieden ungenügender Weise geregelt erscheinen.*

II.

In zweiter Linie muss nachstehende Frage erörtert werden: Inwieweit erscheinen, nach holländischem Rechte, die Interessen der begünstigten Frau oder der begünstigten Kinder den Gläubigern gegenüber gesichert bei Fälligwerden des versicherten Betrages?

Bei der Beantwortung dieser Frage ziehe ich hauptsächlich die Versicherung im Ablebensfalle in Betracht, weil bei derselben die Unterteile der Frage am klarsten hervortreten. Und da wird man die obenstehende Frage für die Praxis einfach wie folgt stellen können: Gehört die versicherte Summe nach holländischem Rechte zum Nachlass des versicherten Kontrahenten? Sollte dies der Fall sein, so würde sie, wenn der Versicherte Schulden hinterlassen hat, den Gläubigern zu Gute kommen und Frau und Kinder würden also das Nachsehen haben. Sollte man die Frage aber in verneinendem Sinne beantworten, so geht daraus hervor, dass Frau und Kinder ein selbständiges Recht auf die versicherte Summe haben und dieses Recht auch den Gläubigern des Versicherten gegenüber handhaben können.

Auch hierbei ist zu bemerken, dass — nachdem eine spezielle Regelung im Interesse von Frau und Kindern fehlt — die Stelle, welche *der Begünstigte,* im Allgemeinen, in dieser Hinsicht einnimmt, auch diejenige der begünstigten Frau und Kinder ist. Und da muss unmittelbar hervorgehoben werden, dass der Begünstigte *qua talis* schon vom Abschluss der Versicherung an ein Recht auf die versicherte Summe besitzt oder — um mich einer klareren Ausdrucksweise zu bedienen — dass das Begünstigungs*recht,* gänzlich abgesehen von der *Person* des jeweiligen Begünstigten, schon beim Abschluss der Versicherung entstanden ist. Die Mehrzahl der holländischen Juristen vertritt diese Ansicht und auch der „Hooge Raad der Nederlanden" (Hollands höchstes Gericht) hat dieselbe bestätigt. Dieses Recht des Begünstigten kann zwar erst *ausgeübt* werden nach dem Tode des Versicherten, es besteht aber dennoch. Es ist in mancher Hinsicht mit dem *Besitzrecht* zu vergleichen, das nur ausgeübt werden kann, wenn es angegriffen wird. Sehr zutreffend ist die diesbezügliche Aussprache des französichen Juristen Méline: « Jusqu'au moment où le capital assuré passe des mains de la compagnie aux mains du bénéficiaire, l'assurance dort.» Dort, wo *geschlafen* wird, muss aber auch *Leben* sein. In der Tat ist der Begünstigte die einzige Person unter denjenigen, welche beim Lebensversicherungsvertrag mit einbezogen sind, welche je Anspruch auf das versicherte Kapital erheben kann. Der Kontrahent ist es gewiss *nicht,* was eben bei Versicherungen auf den Todesfall sehr klar hervortritt. Zwar kann der Begünstigte erst nach Ablauf einer Frist (u. z. erst beim Ableben des Versicherten) diesen Anspruch gelten lassen; das Festsetzen dieser Frist, welche als *dies* aufzufassen ist, verhindert aber keinesfalls, dass sein Recht schon früher besteht. Art. 1304 des holländischen Zivil-Gesetzbuches sagt sogar ausdrücklich, dass eine *dies* nicht den Vertrag selbst, sondern nur dessen Ausführung zeitweilig aufschiebt. Damit wird endgiltig ausgemacht, dass das Recht des Begünstigten seinen Anfang nimmt sobald der Versicherungsvertrag abgeschlossen ist.

Nachdem also der Kontrahent-Versicherte selbst nie ein Recht auf die versicherte Summe hatte, kann dieses Recht auch nicht zu seinem

Nachlasse gerechnet werden. Die Frau und Kinder bekommen also ihre Rechte als Begünstigte keineswegs *jure hereditario,* sondern einfach auf direktem Wege aus dem zu ihren Gunsten abgeschlossenen Vertrag, *völlig unabhängig von eventuellen Ansprüchen von Gläubigern auf das Vermögen des verstorbenen Versicherten.* Diese Gläubiger können also niemals irgend welche Rechte auf das versicherte Kapital gelten lassen, weil dasselbe gänzlich ausser dem Vermögen des Versicherten fällt und auch nie dazu gehörte.

Man soll aber nicht vergessen, dass diese Unanfechtbarkeit des Begünstigungsrechtes *nicht* auch dann anerkannt werden kann, wenn die Versicherung abgeschlossen wurde zur betrügerischen Schädigung der Rechte der Gläubiger. Zwar besteht diesbezüglich in den holländischen Gesetzen keine einzige Vorschrift, aber schon die allgemeinen Rechtsprinzipien deuten auf das Zutreffende dieser Auffassung hin. Als analoge Vorschrift könnte man diejenige bezüglich der Nichtigkeit von Schenkungen unmittelbar vor dem Eintreten des Konkurses zitieren. Es muss aber hier hervorgehoben werden, dass den Gläubigern nie geschadet werden kann durch die Auszahlung des versicherten Betrages, sondern lediglich durch den Abgang der für die Versicherung eingezahlten Prämien. Die Gläubiger können sich daher, sogar im Falle des Betruges, nie *direkt aus dem versicherten Kapital* decken. Eine Vorschrift in diesem Sinne wäre gewiss wünschenwert, und man könnte dabei das englische Gesetz als Muster annehmen, welches die nachstehende Bestimmung enthält: "A policy .... shall create a trust in favor of the objects therein named, and the moneys shall not form part of the estate of the insured or be subject to his debts, provided that if it shall be proved, that the policy was effected and the premiums paid with intent to defraud the creditors of the insured, they shall be entitled to receive *out of the moneys payable under such policy,* a sum equal to the premiums so paid" (Married Women's property act, 1882). Ich möchte hier auch noch Art. 477 des Rumänischen Handelsgesetzbuches hervorheben, der folgenden Wortlaut hat: „Hat jemand auf sein eigenes Leben, oder auf das Leben einer von ihm verschiedenen Person einen Betrag versichert, welcher einer andern wenn auch zu seiner Erbschaft berufenen Person auszuzahlen ist, so gebühren im Falle des Todes oder des Konkurses des Versichernden die Vorteile der Versicherung ausschliesslich der durch den Vertrag benannten Person; jedoch mit Ausnahme der geleisteten Einzahlungen, welche den im Zivil-Gesetzbuch enthaltenen Bestimmungen über den Pflichtteil, über die Anrechnung von Vorausempfängen bei Verlassenschaften, *sowie über den Widerruf der zum Nachteil der Gläubiger vorgenommenen Handlungen* unterworfen bleiben."

Es soll hier noch der Umstand hervorgehoben werden, dass es Juristen gibt, die einen Lebensversicherungsvertrag, von dem Gatten zu Gunsten seiner Frau abgeschlossen, als eine Schenkung betrachten, und demzufolge den Gläubigern dennoch ein Recht auf die versicherte Summe einzuräumen wünschen. Es gibt mehrere Gründe, denen zufolge diese Auffassung widerlegt werden kann, von denen ich heute nur die drei nachfolgenden anführe:

1. Eine Schenkung besteht nur dann, wenn eine ausdrückliche *Annahme* derselben stattgefunden hat, ein Lebensversicherungsvertrag aber sichert dem Begünstigten die Vorteile der Begünstigung auch ohne seine ausdrückliche Annahme derselben;

2. Art. 1704 des holländischen Zivil-Gesetzbuches sagt: „Eine Schenkung kann nur die gegenwärtigen Güter des Schenkenden

umfassen"; wir haben aber bereits gesehen, dass das Recht auf die Versicherungssumme nie dem Kontrahenten zukommt und also nicht zu „seinen gegenwärtigen Gütern" gehört;

3. Art. 1715 des Zivil-Gesetzbuches erklärt Schenkungen zwischen Eheleuten während der Heirat für nichtig. Sollte also bei Lebensversicherung faktisch von einer Schenkung an die Frau die Rede sein, so könnte die Rechtsgiltigkeit des Vertrages selbst in Zweifel gezogen werden, und daran wird doch wohl Niemand denken.

Die den Gläubigern günstige Auffassung, die Lebensversicherungspolice zu Gunsten der verheirateten Frau enthalte eine Schenkung an sie seitens ihres Mannes, erscheint hiermit widerlegt.

Das Recht auf die fällige Versicherungssumme der begünstigten Frau und Kinder steht somit den Gläubigern des versicherten Ehegatten gegenüber völlig unanfechtbar.

Noch auf *einen* Punkt muss ich die Aufmerksamkeit speziell des nicht-holländischen Fachmannes hinlenken. Nach holländischem Recht ist die Frau *nicht* Erbin (*ab intestato*) ihres ohne Testament gestorbenen Ehegatten. Wenn also „die Erben" des Versicherten als Begünstigte in der Police angedeutet werden und es wird beim Ableben des Versicherten kein Testament vorgefunden, so sind es ausschliesslich die Kinder oder — wenn es keine Kinder gibt — die sonstigen gesetzlichen Erben des Versicherten, welche zum Empfang des versicherten Betrages berechtigt sind. Ist dagegen die Frau des Versicherten als Begünstigte designiert, so könnte es möglich sein, dass die Kinder, wegen unrechtmässiger Verminderung ihres Pflichtteiles in Folge der Prämienzahlung, die Auszahlung des versicherten Betrages anfechten würden. Gewöhnlich nimmt man an, dass dies nur dann mit Aussicht auf Erfolg geschehen könnte, wenn die Prämien von dem Versicherten *aus seinem Vermögen* und nicht aus *seinem Einkommen* gezahlt werden. Derartige Fälle werden aber wohl immer zu den grössten Seltenheiten gehören.

Aus allem Vorhergegangenen geht hervor, dass nach holländischem Recht die Stelle der begünstigten Frau und Kinder den Gläubigern des Versicherten gegenüber, insolange die Versicherung besteht, eine sehr ungünstige, beim Fälligwerden des versicherten Betrages aber eine sehr günstige ist, u. z. eine so überaus günstige, dass man von dem jetzigen diesbezüglichen Zustand Missbrauch machen könnte, indem man den Gläubigern in betrügerischer Weise einen Schaden zufügen würde. Es ist besonders erwünscht, dass das Gesetz in diese Angelegenheit eingreife und für beide Fälle einen *gleichmässigen* und rationellen Schutz für die Frau und die Kinder ins Leben rufe, ohne dabei die Interessen von *bona fide* Gläubigern gänzlich aus dem Auge zu verlieren.

LOIS ACTUELLEMENT EN VIGUEUR EN ESPAGNE POUR LA PROTECTION DES ÉPOUSES ET DES ENFANTS, EN TANT QUE BÉNÉFICIAIRES DE L'ASSURANCE-VIE, CONTRE LES RÉCLAMATIONS DES CRÉANCIERS.

Par Dr. J. Maluquer y Salvador.

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Dans le courant moderne de transformation intégrale du Droit privé, courant spécialement représenté par l'école civiliste italienne, il faut signaler les efforts pour intéresser à la constitution de la propriété les individus, la famille et la société.

Le deuxième de ces éléments se manifeste dans la co-propriété familiale représentée, dans le droit successoral actuel, par les quotités de réserve dans la succession testamentaire, et par l'héritage légitime dans la succession *ab-intestat.*

On s'en aperçut clairement en France dans les anciennes contrées dites de droit écrit, lorsqu'on proclamait comme principe que la quote légitime était *pars bonorum non hereditatis.*

Cette tendance vers la conservation de la propriété familiale, unie à d'autres principes dont nous ne devons pas nous occuper maintenant, s'étant accentuée de nos jours, nous en sommes venus à l'institution anglo-américaine de *l'homestead,* c'est-à-dire à la propriété immobilière légalement soustraite aux créanciers dans certaines limites et sous certaines conditions.

On voit donc comment, dans l'histoire du Droit, nous retrouvons l'ancienne tradition et le fondement de ce principe: que dans l'assurance-vie, faite en faveur de l'épouse et des enfants, le capital (qui est en réalité analogue à un compte-courant ouvert par la Compagnie pour la somme totale de l'assurance, à compter du versement de la première prime, et dont elle doit rendre le capital à des conditions stipulées) est déjà le patrimoine de cette femme et de ces enfants du vivant de l'assuré; qu'ils succèdent à celui-ci *jure proprio* et non *jure hereditario* et que les réclamations faites par les créanciers de l'assuré sont non avenues. On peut donc affirmer que l'assurance-vie en faveur des épouses et des enfants est, par rapport aux biens meubles, ce qu'est *l'homestead* quant aux biens immeubles.

L'assurance sur la vie, tout en protégeant le droit de la femme et des enfants légitimes, peut amener aussi une solution à la fâcheuse situation de la famille illégitime, dans des limites raisonnables, bien mieux, et surtout bien plus discrètement que le législateur ne saurait le faire par d'autres moyens juridiques. Elle peut aussi étendre les droits, tout à fait insuffisants, attribués à la veuve dans la généralité des lois sur la succession, et corriger enfin d'autres défauts du Droit n'ayant pas de connexion avec le thème transcrit ci-avant.

C'est ce que réalise en Espagne l'article 428 du Code de Commerce de 1885 que j'ai grand plaisir à signaler, car il constitue une formule large et complète reconnaissant l'efficacité de l'assurance-vie pour garantir les droits des bénéficiaires contre les réclamations civiles étrangères au contrat d'assurance.

Voici le texte de cet article:

« Les sommes que l'assureur doit livrer d'après le contrat, à la

personne assurée, appartiendront à celle-ci, même malgré les réclamations des héritiers légitimes et des créanciers, de toute sorte, de la personne ayant fait l'assurance en sa faveur.» Cet important principe du Droit positif espagnol en matière d'assurance-vie sur les accidents du travail, en ce qui concerne les indemnités par décès de l'ouvrier victime de ces accidents, d'après le précepte établi à l'article 72 du Règlement du 28 juillet 1900 pour l'application de la loi sur la responsabilité industrielle, du 30 janvier de la même année: « L'indemnité par décès, à la charge des compagnies d'assurance, jouira de l'exemption des réclamations des créanciers accordée par l'article 428 du Code de Commerce.»

Il convient de rappeler à ce propos qu'il n'a pas fallu énoncer dans cet article, comme à l'article similaire du Code de Commerce, les réclamations des héritiers légitimes de l'ouvrier, car la dite loi de 1900 détermine clairement à quels héritiers légitimes appartiennent ces indemnités, provenant ou non de l'assurance.

Il faut cependant faire observer, en vue de la bonne interprétation du dit article 428 du Code de Commerce, que par ses premiers mots (*les sommes que l'assureur doit livrer d'après le contrat, à la personne assurée*) il peut prêter à équivoque, ainsi que *M. Badon Pascal* l'a signalé au Congrès de Bruxelles, du fait de la désignation comme *assuré,* dans l'assurance-vie, du contractant de l'assurance, comme c'est le cas pour les assurances contre l'incendie; lorsque, en réalité, le véritable assuré est, en général, celui que nous appelons techniquement le *bénéficiaire.*

Quoi qu'il en soit, la dernière partie de l'article repris ci-dessus du Code de Commerce ne laisse aucun doute qu'on se propose de garantir les droits de la personne en faveur de laquelle l'assurance aurait été faite (*le bénéficiaire*) contre les réclamations des créanciers ou des héritiers légitimes de celui qui aurait fait l'assurance (*l'assuré*).

Le principe en question présente un très grand intérêt par les conséquences juridiques auxquelles son application peut donner lieu; j'ai jugé à propos d'attirer l'attention des assurés espagnols à ce sujet au moyen d'un article que j'ai publié dans la *Revista General de Legislacion y de Jurisprudencia* de Madrid intitulé « Assurance-vie — Effets juridiques de la formule ' aux héritiers '» (Tome XC, année 1897).

Comme il s'agit d'une notice bibliographique au sujet d'une matière traitée en Espagne sur le thème du présent rapport et de questions sur lesquelles les Compagnies devraient, à mon avis, fixer toute leur attention, je me permets d'en référer à certaines observations exposées dans cette monographie pour préciser les différents effets produits lorsque le bénéficiaire rentre en possession du capital de l'assurance *jure proprio,* parce qu'il est censé en avoir acquis la propriété avant le décès de l'assuré, ou lorsque, s'en tenant au *jure hereditario,* le bénéficiaire de l'assurance est l'héritier de l'assuré.

Les garanties précédemment indiquées, qui supposent une laborieuse préparation juridique pour parvenir à les faire admettre par les lois, et une défense continuelle pour que l'application d'autres préceptes du Droit civil ou du Droit administratif ne vienne les amoindrir, sont abandonnées souvent, d'une manière inconsciente, par bien des contractants d'assurances.

On conçoit qu'il en soit ainsi, grâce à l'insouciance qui préside quelquefois, même chez les juristes, à l'examen des conditions de l'opération d'assurances, au contraire de ce qui arrive quand il s'agit d'autres contrats dont l'importance et les suites sont bien moindres.

Toutes les Compagnies d'assurance, d'ailleurs, ne se soucient pas

de donner à leurs agents des règles et des avertissements précis et minutieux en ce qui concerne les effets juridiques de l'assurance dont nous nous occupons.

Pour ces raisons, celui qui signe sa pétition en toute hâte et qui veut réfléchir posément à l'ordre dans lequel il instituera les bénéficiaires; celui qui préfère réunir toutes les dispositions de cette espèce dans son testament; celui qui manque, quand il passe le contrat, d'un bénéficiaire justifié devant exister, croit-il, plus tard, tous ceux-là se bornent à couvrir les simples formules de quelques polices dont ils réservent la valeur « à leurs héritiers » et emploient cette phrase ou toute autre analogue, telle que celle d'exécuteurs testamentaires, ou celle d'administrateurs de *l'abintestat.*

En somme, ils avertissent le bénéficiaire de venir toucher le capital de l'assurance, non de son propre droit, mais en sa qualité d'héritier ou de représentant de la succession: ils pourraient facilement l'éviter si, au lieu de désigner le bénéficiaire par une clause testamentaire, ils se bornaient à demander à la Compagnie une nouvelle police renfermant la clause désirée.

Les effets juridiques de chacune de ces formes peuvent être bien différents et j'indique ci-après quelques-uns, parmi les plus importants qui, suivant moi, peuvent se produire:

1°. Quand il s'agit de désigner le bénéficiaire sur la police soit de son nom, soit par les locutions: « mon épouse et mes enfants » ou « mon épouse,» « mes enfants,» etc., il suffit de vérifier le décès de l'assuré et la personnalité du bénéficiaire, pour que celui-ci perçoive le montant de l'assurance; tandis que dans le second des cas mentionnés, les intéressés doivent justifier leur droit par l'exhibition du testament ou par la déclaration judiciaire d'héritiers *ab-intestat* avec tous les retards et toutes les difficultés que pourront exiger les formalités à remplir.

2°. Lorsqu'on réclame à titre d'héritier, il faut admettre comme juste l'apport du capital assuré à la masse commune et il n'est guère possible de s'opposer aux réclamations des héritiers et des créanciers puisque, au contraire, l'assurance appartient, dès lors, aux héritiers, et il faut alors la distribuer entre eux, suivant les règles de la succession établie par le Droit commun.

3°. S'il perçoit le montant de l'assurance à titre d'héritier, il n'y a pas le moindre doute que le bénéficiaire exécute un acte d'acceptation tacite de l'héritage de l'assuré; héritage qu'il ne pourrait plus refuser si cela rentrait dans ses vues.

4°. Il serait discutable, en cas contraire, que celui qui aurait refusé l'héritage pût réclamer le capital de la police, faisant valoir sa qualité d'héritier.

Il faut bien reconnaître que quelques Tribunaux à l'étranger ont corrigé cette indétermination de l'assuré et interprété au profit de la famille les clauses de la police et il serait facile de citer des sentences de plusieurs nations, estimant que les enfants succèdent à leurs parents *jure proprio* et non *jure hereditario,* malgré l'emploi de la formule « à mes héritiers, à mes exécuteurs testamentaires ou à mes administrateurs » (*to his heirs or representatives,* d'après la formule anglaise) et qui n'ont fait aucun cas des réclamations des créanciers; mais il serait difficile de prédire si cette opinion des nations où l'influence de l'assurance est considérable pourrait être admise par les Tribunaux d'autres pays où l'intensité de cette influence ne serait pas si puissante; d'autant plus que nous pourrions citer d'autres arrêts postérieurs, des mêmes nations, en sens contraire, et il serait difficile d'ap-

précier dans le domaine strict du Droit, comme dit le savant professeur italien de Droit commercial *Vivante,* les raisons, fondées sur d'honnêtes intentions, de la jurisprudence favorable à l'assurance dont nous avons parlé tout à l'heure.

ABSTRACT.

By Dr. J. Malaquer y Salvador.

1. Foundation and precedents, in ancient law and contemporary law of this principle: That the wife and children designated as beneficiaries acquire the rights of property in the Insurance Capital, during the life of the insured, and that they have the enjoyment of this capital at the death of the insured, "jure proprio" and not "jure hereditario."

2. As a consequence of this principle the Insurance Capital belongs entirely, under these conditions, to the wife and to the children of the insured and is not amenable to any suit set up by the creditors of the latter, and the property rights in life insurance, considered as personal property, can be assimilated with property rights in the Anglo-American Institution of *Homestead,* in its relation of real estate.

3. The broad and favorable disposition to Life Assurance of the Spanish Commercial Code of 1885 (article 428) is inspired by this doctrine. It establishes that the capital of insurance becomes the property of the beneficiary even in spite of the claims of the legitimate heirs and of all creditors of the person having made the assurance in her favor.

4. The Spanish legislation on insurance against the accidents of work, concerning the indemnities through death of the workmen, is likewise inspired through this doctrine.

5. The matter is presented in Spain so that the insured do not scorn the mentioned advantages, substituting the "jure hereditario" to the "jure proprio" of the beneficiaries, which must always be designated to this effect, nominally or by these terms: "my wife and my children," etc.

6. It matters not that the Life Insurance Companies give their agents precise particulars, so that they inform the candidates in the most explicit manner on the different lawful effects of the beneficiary clause and in order that they try to convince them of the interest of not depriving the beneficiary of the guarantees of the "jure proprio" positively assured under the protection of the said legislation in force, which it behooves to keep for the profit of the life insurance in order to reform the legal imperfections which we signalize in our modest report.

KURZE NOTIZ.

Von Dr. J. Maluquer y Salvador.

1. Grundsatz und Richtschnüre im alten Gesetz und im gleichzeitigen Gesetz, von diesem Grundsatz: Dass die Gattin und die Kinder als Pfründner benannt in der Lebensversicherung das Eigenthum des Versicherungs-Kapitals erwerben, während des Lebens des Versicherten und dass sie den Genuss dieses Kapitals beim Tod des Versicherten "jure proprio" und nicht "jure hereditario" haben.

2. Als Folge dieses Grundsatzes gehört, unter diesen Bedingungen, das ganze Versicherungs-Kapital der Gattin und den Kindern des Versicherten und entkommt irgend welcher Klage der Gläubiger desselben, und die Wirkungen der Lebensversicherung können, was das bewegliche Gut anbetrifft, den Wirkungen der anglo-amerikanischen Anstalt der "Homestead" betreffs der unbeweglichen Güter verglichen werden.

3. Die für das Versicherungsleben breite und günstige Gesinnung des Spanischen Handelsgesetzbuches von 1885, Artikel 428, begeistert sich mit diesem Lehrsatz. Sie bestellt, dass das Kapital der Versicherung das Eigenthum des Pfründners wird, ungeachtet der Zurückforderungen der rechtmässigen Erben und aller Gläubiger der Person, welche die Versicherung für sich selbst gemacht hat.

4. Die spanische Gesetzgebung über die Versicherung gegen Unglücksfälle der Arbeit, bezüglich der Entschädigungen durch das Absterben der Arbeiter, wird ebenso durch diesen Lehrsatz begeistert.

5. Ausbreitung der Gesellschaft in Spanien betrieben, damit die Versicherten die erwähnten Vortheile nicht verachten, indem das "jure hereditario" für das "jure proprio" der Pfründner unterschoben wird, welche Pfründner immer zu diesem Zweck namentlicherweise oder durch diese Ausdrücke "meine Frau und meine Kinder" u. s. w. bezeichnet werden.

6. Es liegt viel daran, dass die Lebensversicherungsgesellschaften ihren Agenten besondere Vorschriften geben, damit sie die Kandidaten der Versicherungen in der bestimmten Art über die verschiedenen rechtsförmigen Wirkungen der Pfründner-Clausel belehren; und damit sie dieselben überzeugen über ihren Vortheil und den Pfründner der Gewährleistungen des "jure proprio" nicht zu berauben, welche wirklich unter dem Schutz der sogenannten wirksamen Gesetzgebung versichert sind, dass es sich geziemt, den Vortheil der Lebensversicherung zu bewahren und die gesetzlichen Unvollkommenheiten, die wir in unserem bescheidenen Bericht bezeichnen, zu reformiren.

LAWS PROTECTING LIFE INSURANCE AGAINST CREDITORS.

BY

CHARLTON T. LEWIS, PH.D., LL.D.

I.

THE STATE OF NEW YORK.

The first statute passed in any of the United States for the protection of policies of life insurance against creditors was Chapter 80 of the Laws of 1840 of the State of New York, entitled "An Act in respect to insurance on lives for the benefit of married women."

Section 1. "It shall be lawful for any married woman, by herself and in her name or in the name of any third person, with his assent as her trustee, to cause to be insured for her sole use the life of her husband for any definite period or for the term of his natural life, and in case of her surviving her husband the sum or net amount of the insurance becoming due and payable by the terms of the insurance shall be payable to her to and for her own use, free from the claims of the representatives of her husband or of any of his creditors; but such exception shall not apply when the amount of premium paid annually shall exceed three hundred dollars.

Section 2. "In case of the death of the wife before the decease of her husband, the amount of the insurance may be made payable after her death to her children for their use, and to their guardian if under age."

This Act was amended by Chapter 187 of the Laws of 1858, which, however, is entitled "An Act to amend an act entitled 'An Act for the benefit of married women in insuring the lives of their husbands.'" The misquotation of the title of the Act of 1840, however, has had no effect upon the purpose or interpretation of the law.

By this act the last sentence of Section 1 of the Act of 1840 was amended so as to read "but such exemption shall not apply when the amount of premium annually paid out of the funds or property of the husband shall exceed three hundred dollars." In the re-enactment of Section 2 the word *her* in the phrase "after her death" was also omitted.

By Chapter 70 of the Laws of 1862, Section 2 was amended to read as follows: "The amount of the insurance may be made payable in case of the death of the wife before the decease of her husband to his or to her children, for their use, as shall be provided in the policy of insurance, and to their guardian if under age."

By Chapter 656 of the Laws of 1866, Section 1 was amended, first, by substituting for the clause "in case of her surviving her husband," the words "in case of her surviving such period or term," and also by substituting the words "the representatives of the husband" for the phrase "the representatives of her husband." By the same Act Section 2 was amended by substituting for the words "before the decease of her husband, to his or to her children," the words "before the period at which it becomes due, to her husband or to his, her or their children."

By Chapter 277 of the Laws of 1870 Section 1 was further amended so that after the words "free from the claims of the representatives of the husband or of any of his creditors" the remainder of the section should read as follows: "or any party or parties claiming by, through or under him. But when the premiums paid in any year out of the property or funds of the husband shall exceed five hundred dollars such exemption from such claim shall not apply to so much of said premium so paid as shall be in excess of five hundred dollars, but such excess, with the interest thereon, shall inure to the benefit of his creditors."

The Court of Appeals in 1862 held that a policy issued for the benefit of a wife upon the life of her husband was unassignable.* The inconvenience resulting from this led to an amendment which was designed to remove this disability, while retaining the protection which the law gave to the proceeds of such policies against the claims of creditors. Accordingly, by Chapter 821 of the Laws of 1873, Section 2 of the Act was amended to read as follows: "Any policy in favor of a married woman or of her and her children, or assigned in her or in her and their favor, on written request of said married woman duly acknowledged before a commissioner of deeds, or other officer authorized to take acknowledgments of deeds, in the same manner as required by law to pass her dower right in lands of her husband, and on the written request of the policyholder, may be surrendered to and purchased by the company issuing the same, in the same manner as any other policy. And such married woman may, in case she have no child or children born of her body or any issue of any child or children born of her body, dispose of such policy in and by a last will and testament, or any instrument in the nature of a last will and testament, or by deed duly executed and acknowledged before an officer authorized to take acknowledgments of deeds, in the same manner as required by law to pass her dower right in lands of her husband, which disposition lawfully made shall invest the person or persons to whom such policy shall have been so bequeathed or granted and conveyed with the same rights in respect thereto as such married woman would have had in case she survived the person on whose life such policy was issued, and such legatee or grantee shall have the same right to dispose of such policy as herein conferred upon such married woman."

It was, however, found that this amendment failed to accomplish its purpose, and Chapter 248 of the Laws of 1879, entitled "An Act for the relief of policyholders in life insurance companies," was passed to remove the difficulty. It read as follows: "Section 1. All policies of insurance heretofore or hereafter issued within the State of New York upon the lives of husbands for the benefit and use of their wives, in pursuance of the laws of the State, shall be from and after the passage of this act assignable by said wife with the written consent of her husband; or in case of her death, by her legal representatives, with the written consent of her husband, to any person whomsoever, or be surrendered to the company issuing such policy, with the written consent of the husband."

By Chapter 272 of the Laws of 1896, all of the acts cited above except Chapter 248 of the Laws of 1879 were repealed, and Section 22 of this act, "The Domestic Relations Law," took their place. It reads as follows: "A married woman may, in her name or in the name of a third person, with his consent as her trustee, cause the life of her husband to be insured for a definite period or for the term of his natural life. Where a married woman survives such period or term she is entitled to receive the

*Eadie vs. Slimmon, 26 N. Y. 9.

insurance money payable by the terms of the policy as her separate property, and free from any claim of the creditors or representatives of her husband, except that where the premium actually paid annually out of the husband's property exceeds five hundred dollars that portion of the insurance money which is purchased by excess of premium above five hundred dollars is primarily liable for the husband's debts. . . . . A policy of insurance on the life of any person for the benefit of a married woman is also assignable and may be surrendered to the company issuing the same by her or her legal representatives, with the written consent of the assured."

This act remains in force without modification. It may be added that policies of insurance issued by co-operative insurance companies for many years enjoyed a special exemption, even of the funds after they were paid over to the wife, from the claims of her creditors. (Chapter 175, Laws of 1873; Chapter 116, Laws of 1884; Chapter 520, Laws of 1889). But these acts are held by the Court of Appeals of the State of New York to have been repealed by implication, by the passage of the General Insurance Law, Chapter 690 of the Laws of 1892, Section 238. This section provides: "All money or other benefit, charity, relief or aid to be paid, provided or rendered by any such society, order or association, whether voluntary or incorporated under this article or any other law, shall not be liable to be seized, taken or appropriated by any legal or equitable process, to pay any debt or liability of a member, beneficiary, or beneficiaries of a member," the court holding that this provision does not cover the case of money after it has been actually paid over and received by the beneficiary, but that such funds are then liable to attachment for a debt of the beneficiary. (165 N. Y., 578; Bull vs. Case.)

II.

Other States.

The singular vicissitudes through which the law of New York has reached its present form have been detailed above as forming an interesting history of the genesis of legislation upon this technical subject. They have been paralleled to a large extent in several other States of the Union, but it is unnecessary, and would be tedious, to follow them out in full. The original New York law of 1840 has furnished a type or model for legislation in many other States, though in every instance some modification has been made in the language employed, and not infrequently changes of importance, some of which are difficult to explain, are found in the substantial protection afforded. Vermont in 1863 adopted, in substance, the first New York law. South Carolina in 1875 enacted a similar provision extending the limit of premium which might be paid out of the property of the husband to $500 each year, any excess of premium to go to his creditors if necessary for their payment. West Virginia in 1868, and Delaware in 1874, adopted the New York law of 1840, fixing the limit of such premiums at $150. Arkansas, in 1873, enacted the same provision, with a limit to an annual payment of $300. Alabama, in 1867, copied almost literally the New York law of 1840, limiting the annual premium to $500. Kansas, in 1871, adopted like provisions, but with two curious modifications, first expressly exempting the insurance funds from liens for taxes as well as for debts, and secondly, defining the limit of premium by declaring that the amount insured should not

exceed the value to be purchased at age 30 by continued life payment, upon the American Experience Mortality table at four and a half per cent. interest, of $500 as annual premium. In 1872 Rhode Island granted the same protection to wives, limiting the principal sum insured to $10,000. Missouri, in 1889, adopted a law modelled upon the New York statute of 1840, but limiting its protection to policies the premiums of which had been paid by the wife out of her separate funds or property. At the same time, however, it made a much more liberal provision in a separate enactment (Section 5854, Revised Statutes of 1889), that "any policy of insurance heretofore or hereafter made by any insurance company upon the life of any person, expressed to be for the benefit of the wife of the insured, shall inure to her separate benefit, independently of the creditors, executors, and administrators of the husband; *provided, however,* that in the event of the death or divorcement of the wife before the decease of the husband, he shall have the right to designate another beneficiary, upon written notice to the company. . . . . But when the premiums paid in any year out of the funds or property of the husband shall exceed the sum of $500, such exemption from such claims shall not apply to so much of said premiums so paid as shall be in excess of $500, but such excess shall inure to the benefit of his creditors."

Ohio and Illinois and the Territory of Oklahoma, successively, in their Revised Statutes, have made similar provision for the protection of insurance obtained through any person by a wife upon the life of her husband, without further limitation of the amount paid in premiums than that money so paid with intent to defraud creditors shall be secured to creditors out of the proceeds of the policy, subject to the statute of limitations. This provision, it will be seen, originated in Massachusetts, and has been borrowed in several other States from her law of 1864.

New Jersey, by an Act of 1851, amended in 1871, adopted, in substance, the New York law of 1840, omitting any limit upon the amount of insurance. In States in which the statute takes this form it is probable that the courts would apply the principle that fraud defeats the protection offered by the law, and would save for creditors premiums paid with clear intent to defraud them.

Michigan, in the law of 1869, last revised in 1885, has an interesting section which combines several features of the legislation in other States, as follows:

"Section 23. It shall be lawful for any husband to insure his life for the benefit of his wife, and for any father to insure his life for the benefit of his children or of any one or more of them, and in case that any money shall become payable under the insurance, the same shall be payable to the person or persons for whose benefit the insurance was procured, his or her or their representatives or assigns, for his, her or their own use and benefit, free from all claims of the representatives of such husband or father or of any of his creditors; and any married woman, either in her name or in the name of any other person as her trustee may cause to be insured the life of her husband or of any other person for any definite period or for the term of life, and the moneys that may become payable under the contract of insurance shall be payable to her, her representatives or assigns, free from the claims of the representatives of the husband or of such other person insured, or of any of his creditors. And in any contract of insurance it shall be lawful to provide that on the decease of the person for whose benefit it is obtained before the sum insured shall become payable, the benefit thereof shall accrue to any other person or persons designated; and such other person or persons shall, on the hap-

pening of any such contingency, become the lawful owner or owners of the policy of insurance and entitled to enforce the same to the full extent of its terms, notwithstanding he, she, or they may not at the time have any such insuranble interest as would have enabled him, her, or them to obtain new insurance."

In several of the States legislation on this subject seems to have been entirely independent of the original legislation of New York. In several of the States no statute upon the subject has been enacted. In a few the only legislation in force appears to be a reaffirmation of recognized principles of the common law. For example, Maryland, by a statute of 1888, explicitly declares that an insurable interest in a husband's life is vested in his wife. The laws of Pennsylvania and of Tennessee are of peculiar interest, because of their exceptional liberality in protecting wives and children. Thus Pennsylvania, by the law of 1872, provides that "policies of insurance and anuities which shall hereafter mature, taken out for or assigned to a wife, children, or dependent relatives, shall be vested in them free of the claims of the creditors of the person insured." And Tennessee, by the law of 1871, provides:

"Section 2472. Any life insurance effected by a husband on his own life shall, in the case of his death, inure to the benefit of his widow and children, and the money thence arising shall be divided between them according to the law of distribution, without being in any manner subject to the debts of the husband, whether by attachment, execution or otherwise.

"Section 2479. Whenever a married woman causes a life insurance to be effected upon her husband's life it shall in no case be subject to execution or attachment for the debts of the husband; it shall inure to the benefit of the widow and child."

But Florida outdoes even these States in her zeal for the cause of the dependent family. Her law of 1872 reads as follows:

"Whenever any person shall die in this State leaving insurance upon his or her life, the said insurance shall inure exclusively to the benefit of his or her child or children, husband or wife, in equal portions, or to any other person for whose use and benefit said insurance is declared in the policy; and the proceeds thereof shall in no case be liable to attachment, garnishment, or any legal process, by any creditor or creditors of the person whose life was so insured, unless said policy declares that said insurance was effected for the benefit of such creditor or creditors."

Georgia, by the Code of 1873, Section 2820, goes far in the same direction. It provides that "the assured may direct the money to be paid to his personal representatives or to his widow, or to his children, or to his assignee, and upon such direction given and assented to by the insurer, no other person can defeat the same, but the assignment is good without such assent."

It will be observed that in these States, as in Maryland, cited above, no limit is placed by law upon the amount which may be invested by the husband for the protection of his widow and children in the future.

The law of Massachusetts upon this subject, beginning with the first Act of 1864, Chapter 197, after many successive revisions and minor changes, remains in substance the well-considered and effective measure which it was at first. Its final form, as it appears in the General Statutes of 1894, Chapter 118, Section 73, is as follows:

"If a policy of insurance is effected by any person on his own life, or on another life, in favor of a person other than himself having an insurable interest therein, the lawful beneficiary thereof, other than himself

or his legal representatives, shall be entitled to its proceeds against the creditors and representatives of the person effecting the same; and the person to whom a policy of insurance issued subsequently to the eleventh day of April in the year 1894 is made payable may maintain an action thereon in his own name, provided that, subject to the statute of limitations, the amount of premiums for said insurance paid in fraud of creditors, with interest thereon, shall inure to their benefit from the proceeds of the policy; but the company issuing the policy shall be discharged of all liability thereon by payment of its proceeds in accordance with its terms, unless before such payment the company shall have written notice by or in behalf of creditors, with specification of the amount claimed, claiming to recover for certain premiums paid in fraud of creditors.

"Every policy of insurance made payable to, or for the benefit of a married woman, or after its issue assigned, transferred, or in any way made payable to a married woman, or to any person in trust for her or for her benefit, whether procured by herself, her husband, or any other person, whether such assignment or transfer is made by her husband or by any other person, shall inure to her separate use and benefit and to that of her children, subject to the provisions of this section relative to premiums paid in fraud of creditors under this and section 76. (The Non-Forfeiture Law.)"

Connecticut, in 1875, copied the substance of the Massachusetts law as it then stood, adding that upon the death of the wife leaving no child, the policy shall belong to the person who has paid the premiums, unless the policy itself otherwise provides, and limiting the amount of annual premium paid to $300.

A few of the modifications introduced by different States into these general provisions may be quoted, without reciting the statutes in full. Thus in Maine (Laws of 1871) all moneys paid upon life insurance policies, after deducting the premiums for three years with interest, are made exempt from creditors, for the benefit of the widow or child (one-third to go to the widow and the rest to the children), and may be bequeathed by will, even though the estate be insolvent. All policies of life insurance, and moneys due thereon, are exempt from attachment during the continuance of the life insured, to the extent purchased by an annual premium of $150.

North Carolina, and several other States, expressly authorize a married woman to dispose of the policy upon her husband's life by will. In New York, until the passage of the Act of 1873, quoted above, a wife could not by any act alienate her interest in a policy upon her husband's life while that life continued (Eadie vs. Slimmon, 26 N. Y., 9). Until the Act of 1879, Chapter 248, she could not by any act alienate such interest during his life if there were a child of the marriage living. But by the last named Act her power of assignment, with the written consent of her husband, became absolute. The rule in Eadie vs. Slimmon, however, was not approved by the courts of all the States, even as to policies issued under the New York law of 1840 or those of other States substantially like it; and several States have expressly provided by statute that any such policy may be assigned by the wife at her pleasure.

RÉSUMÉ.

LES ORDONNANCES POUR LA PROTECTION DE L'ASSURANCE SUR LA VIE CONTRE LES CRÉANCIERS.

Par Charlton T. Lewis.

Cet essai nous donne un aperçu des lois par lesquelles on peut protéger contre les créanciers des assurés, les polices d'assurance émises dans l'intérêt des femmes et des enfants, dans les différents Etats de l'Union. La première loi, a cet effet fut promulguée en 1840, dans l'Etat de New York. Elle légalisait l'assurance du mari en faveur de son épouse et la déclarait insaisissable contre les réclamation des héritiers ou des créanciers du mari, a condition que la prime ne dépassât pas $300. La Police pourait de même être transférée de la femme aux enfants, dans le cas de décès de cette dernière avant son mari. Cette loi fut très mal interprétée et aboutissait continuellement à des litiges interminable. Elle fut amendée plusieurs fois et rendue par cela plus précise. En 1858, il fut résolu que les 300 dollars de limite ne se rapporteraient qu'a ce serait payé provenant des biens du mari et en 1870 cette limite fut étendue à $500. Mais il en résulta les plus grandes difficultés en ce que la cession de la police devenait impossible par suite de l'interprétation et de la décision de la loi par les tribunaux et même le rachat par la compagnie qui l'avait émise. Il ne pourait être fait aucun usage de la police avant sa maturité. La légalisation de la cession de pareilles polices eut ceulement lieu en 1873, mais avec les restrictions telles que la loi en demeura partiellement sans effet. Toutefois en l'année 1879, toutes ces polices fruent reconnues cessibles sans autres restrictions que l'approbation de l'assuré. D'autres clauses ont donné une autre tournure à cette loi, sans cependant en changer le principe. Il existe de semblables lois dans la majeure partie des autres Etats de l'Union, mais le montant de la prime annuelle qui peut se payer avec les biens de l'époux varie considerablement. Dans deux Etats elle n'est que de $150, dans beaucoup d'autres de $500, tandis que dans d'autres elles ne sont soumises à aucunes restrictions.

Toutefois dans plusieurs Etats à taux illimité la loi ordonne que, quand la prime annuelle provenant du bien du mari aura été employée dans le but de nuire aux créanciers, ces derniers soient compensés avec le montant de la police et cette ordonnance pouna aussi être considérée comme modèle dans les autres Etats qui ne sont pas encore prononcés ouvertement pour cette loi. Ou peut affirmer comme règle générale que tout mari peut assurer sa vie en faveur de sa femme, tout père en faveur de ses enfants ou d'un enfant et que la police à moins de fraude, appartient à sa maturité au bénéficiaire dégrevée de toutes les prétentions des héritiers ou des créanciers de l'assuré.

KURZE NOTIZ.

DER GESETZLICHE SCHUTZ DER LEBENSVERSICHERUNGEN GEGEN DIE ANSPRUCHE DER GLÄUBIGER DES VERSICHERTEN.

Von Charlton T. Lewis.

Die Abhandlung gibt eine Uebersicht der Gesetze, durch welche in den verschiedenen Staaten der nordamerikanischen Union diejenigen Lebensversicherungspolicen, welche zum Besten von Frau und Kindern herausgenommen worden sind, gegen die Ansprüche der Gläubiger des Versicherten geschützt werden. Das erste Gesetz in dieser Richtung wurde 1840 im Staate New York erlassen. Es legalisierte die Versicherung des Mannes zugunsten seiner Gattin und erklärte sie für nicht haftbar für Ansprüche der Erben oder Gläubiger des Mannes, vorausgesetzt, dass die Jahresprämie $300 nicht überstieg. Auch konnte die Police, falls die Frau vor ihrem Manne sterben sollte, auf die Kinder übertragen werden.

Dieses Gesetz war sehr ungenau gefasst und führte fortwährend zu Schwierigkeiten und Rechtshändeln. Es wurde verschiedentlich amendiert und dabei etwas besser präcisiert. 1858 wurde bestimmt, dass sich die $300-Grenze nur auf das beziehen solle, was aus dem Vermögen des Mannes gezahlt wurde, und 1870 wurde diese Grenze auf $500 erweitert. Allein die bedenklichsten Schwierigkeiten

ergaben sich daraus, dass das Gesetz nach der Auffassung und Rechtsprechung der Gerichte die Cession der Police unmöglich machte, noch selbst den Rückkauf derselben durch die Compagnie, welche sie ausgestellt hatte. Vor ihrer Fälligkeit konnte man absolut keinen Gebrauch von der Police machen. Erst im Jahre 1873 legalisierte man die Cession solcher Policen, aber mit solchen Einschränkungen, dass das Gesetz absolut unwirksam blieb; dagegen wurden im Jahre 1879 alle derartigen Policen für abtretbar erklärt, ohne andere Einschränkung, als die Genehmigung des Versicherten. Neuere Zusätze haben diesem Gesetz wohl redaktionell ein anderes Ansehen gegeben, der Kern desselben ist jedoch unverändert geblieben.

In den meisten anderen Staaten der Union gibt es ähnliche Gesetze, aber der Betrag der Jahresprämie, welche aus dem Vermögen des Mannes bezahlt werden darf, schwankt beträchtlich. In zwei Staaten beläuft er sich auf nur $150, in vielen auf $500, während er in anderen wieder überhaupt keiner Beschränkung unterliegt. In verschiedenen Staaten aber mit unbeschränkten Beträgen bestimmt das Gesetz, dass wenn die Jahresprämie aus dem Vermögen des Mannes mit der Absicht, die Gläubiger zu benachteiligen, genommen worden ist, dieselbe den letzteren aus dem Ertrag der Police ersetzt werden müsse; und diese Bestimmung dürfte wohl allgemein auch in denjenigen Staaten als massgebend betrachtet werden, welche sie nicht ausdrücklich zum Gesetz erhoben haben. Im allgemeinen kann man daher behaupten, dass überall in den Vereinigten Staaten ein Mann sein Leben zugunsten seiner Frau, — ein Vater zugunsten seiner Kinder oder eines Kindes, — versichern darf, und dass, abgesehen von Betrug, die Police derjenigen Person bei ihrer Fälligkeit gehört, zu deren Gunsten sie ausgestellt ist,—frei von allen Ansprüchen der Erben oder der Gläubiger des Versicherten.

DIE BESTE ART UND WEISE ZUR AUFSTELLUNG UND VERÖFFENTLICHUNG VON REGIERUNGS-STATISTIKEN BEZÜGLICH GEFAHRVOLLER BERUFSARTEN UND DER STERBLICHKEIT IN DENSELBEN.

Von J. J. Harms Tiepen,
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LE MEILLEUR PLAN À SUIVRE DANS LA PRÉPARATION ET LA PUBLICATION DE STATISTIQUE DU GOUVERNEMENT AU POINT DE VUE DES OCCUPATIONS DANGEREUSES ET DE LA MORTALITÉ QUI S'Y RATTACHE.

Par J. J. Harms Tiepen.

ON THE BEST PLAN FOR PREPARING AND PUBLISHING GOVERNMENT STATISTICS CONCERNING DANGEROUS OCCUPATIONS AND THE MORTALITY THEREIN.

By J. J. Harms Tiepen.

LISTE DER BERUFSARTEN UND BERUFSGRUPPEN.

(*Ergänzung zu den acht Tabellen der Unfall-Statistik und drei Tabellen der Krankheits- und Sterblichkeits-Statistik.*)

I. Verkehr und Handel.

a. Dampfschifffahrtunternehmungen.
b. Schifffahrt, Binnensee-, ohne Dampfbetrieb.
c. Flussüberfuhren.
d. Ruder- und Segelbootvermietungsanstalten.
e. Fischereibetriebe auf Fluss und Binnensee.
f. Taucherbetriebe.
g. Schüten- und Lichterschifferbetriebe.
h. Vehm- und Dockarbeiter (Unternehmungen für das Beladen, Entladen von Schiffen).
i. Hisskrahnbetriebe.
k. Betriebe von Exploitierung von Docks zur Restaurierung von Schiffen.
l. Betriebe zur Verwendung von Schleusen und Brücken.
m. Eisenbahnen mit Dampfkraft.
n. Strassenbahnen mit elektrischem Betriebe.
Strassenbahnen mit thierischer Zugkraft.
o. Automobilunternehmungen.
p. Omnibusunternehmungen.
q. Mietwagenunternehmungen (Fiaker, Einspänner).
r. Reitpferdeunternehmungen.
s. Speditionsunternehmungen.
t. Fahrpostunternehmungen.
u. Betriebe von Ballastunternehmungen.
v. Leichenbestattungsunternehmungen.
w. Lastenbeförderung ohne Verwendung von Fuhrwerk mit Zugthieren (Eckensteher, Packträger und Dienstmännerunternehmungen).
x. Torf- und Kohlenträgerbetriebe.

II. Bauten und Bauausführungen.

A. Bauunternehmungen.

a. Canal- und Deicharbeiter.
b. Hafen-, Schleusen- und Brückenbau.
c. Strassen- und Wegebau.
d. Steinsetzerbetriebe.
e. Eisenbahnbau.

B. Baugewerbe.

a. Demolierungsarbeiten an Gebäuden.
b. Fundierungs- und Rammungsarbeiten.
c. Zimmerer und Gerüstmacher.
d. Maurer.
e. Dachdecker.
f. Stuccateure.
g. Anstreicher und Bauglaser.

Die beste Art und Weise zur Aufstellung und Veröffentlichung von Regierungs-Statistiken bezüglich gefahrvoller Berufsarten und der Gefährlichkeit in denselben.

Von J. J. Harms Tiepen,

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UNFALL-STATISTIK

Tabelle I

BERUFSARTEN und BERUFSGRUPPEN	Zahl der Vollarbeiter am Anfange der Monate																							
	Januar		Februar		März		April		Mai		Juni		Juli		August		September		October		November		December		Durchschnitt der Monate	
	männl.	weibl.	männl.	weibl.	männl.	weibl.	männl.	weibl.	männl.	weibl.	männl.	weibl.	männl.	weibl.	männl.	weibl.	männl.	weibl.	männl.	weibl.	männl.	weibl.	männl.	weibl.	männl.	weibl.
I. Verkehr und Handel																										
a. Dampfschifffahrtunternehmungen ...																										
b. Seefahrt, Binnensee-, ohne Dampfbetrieb																										
c. Lastschleppen ...																										
d. Ruder- und Segelbootvermietungsanstalten ...																										
etc., etc., etc.																										

(Die vollständige Liste der Berufsarten und Berufsgruppen siehe weiter hinten.)

Tabelle II

BERUFSARTEN und BERUFSGRUPPEN	Zahl der beobachteten Personen Durchschnitt der Monate				Zur Beitragsleistung angerechnete Lohnsumme	Zahl der Betriebsunfälle deren Folge war								
						überhaupt			vorübergehende Erwerbsunfähigkeit		dauernde Erwerbsunfähigkeit		Tod	
	männlich	weiblich		Total		männlich	weiblich	Total	weniger als 6 Wochen	mehr als 6 Wochen*	gänzlich	theilweise	plötzlich	in einem Jahre nach dem Unfall
I. Verkehr und Handel														
a. Dampfschifffahrtunternehmungen ...														
b. Seefahrt, Binnensee-, ohne Dampfbetrieb														
c. Lastschleppen ...														
d. Ruder- und Segelbootvermietungsanstalten ...														
etc., etc., etc.														

(Die vollständige Liste der Berufsarten und Berufsgruppen siehe weiter hinten.)

*bei nicht constatirter gänzlicher oder theilweiser Erwerbsunfähigkeit.

h. Tapezierer und Möbelbekleider.
i. Unternehmungen zum Reinigen von Fenstern, Dächern, Portalen, Häuserfaçaden und dergl.
k. Strassenreinigungsunternehmungen.
l. Pfützen- und Rinnenreinigungsunternehmungen.
m. Betriebe der Rauchfangkehrer.
n. Berufsfeuerwehren.

III. Erd-, Stein- und Glasarbeiten.

a. Torfstiche.
b. Torfstreu- und Torfmüllerzeugung.
c. Eisenerzgruben.
d. Kies- und Pflastersteingräbereien.
e. Steinbrüche.
f. Stein- und Schotterschlägereien.
g. Steinmetzereien (in Werkstätten und auf Bauten).
h. Steinschleifereien und -Drehereien.
i. Mühl- und Schleifsteinerzeugung.
k. Granit- und Marmorwarenerzeugung.
l. Bildhauereien.
m. Terracottenfabriken.
n. Ziegelei und Majolikawarenerzeugung.
o. Cementwarenfabriken.
p. Porzellanfabriken.
q. Steingutfabriken.
r. Thonöfenfabriken.
s. Töpfereien.
t. Tabakspfeifenerzeugung.
u. Gipsmühlen und -Brennereien.
v. Kalkbrennereien.
w. Glasfabriken (inclusive Tafelglasfabr.).
x. Glasbrennereien, -Aetzereien, -Druckereien und -Schleifereien.
y. Marmorglaserzeugung.
z. Spiegelglas- und Spiegelfabriken.
aa. Tafelglas- und Flaschenfabriken.
bb. Edelstein- und Diamantschleifereien.

IV. Metallverarbeitung.

a. Gold- und Silberwarenfabriken.
b. Eisen- und Stahlgiessereien.
c. Eisendrahtziehereien.
d. Gürtlereien.
e. Emaillierungsanstalten und Emailgeschirrfabriken.
f. Eisen- und Stahlwarenfabriken.
g. Eisenblechwarenfabriken.
h. Blei- und Zinkwarenerzeugung.
i. Galvanisierungsanstalten.
k. Bronzewarenfabriken.
l. Schriftgiessereien.
m. Feilen-, Hammer- und Zeugschmiede.
n. Kettenschmiede.

o. Messerschmiede.
p. Landwirtschaftliche Zeugschmiede.
q. Schrauben- und Nietenerzeugung.
r. Metallknopf-, Kurz- und Galanteriewarenerzeugung.
s. Geldschrankerzeugung.
t. Kesselbauanstalten.
u. Gas-, Wasserleitungs- und Heizungsanlagen.
v. Locomotivfabriken.
w. Maschinenfabriken.
x. Spritzen- und Löschrequisitenerzeugung.
y. Nähmaschinen- und Nähmaschinenbestandtheilefabriken.
z. Schiffbau- und Schiffdemolierungsbetriebe.
aa. Bauanstalten für Kähne und Schiffe ohne Verwendung für Motor.
bb. Waggonfabriken.
cc. Wagen- und Kutschenbauanstalten.
dd. Kinderwagenfabriken.
ee. Gewehr- und Büchsenmachereien.
ff. Geschützerzeugung.
gg. Grob- und Hufschmiede.
hh. Kupferschmiede.
ii. Blei- und Zinkverarbeiter.
kk. Instrumente und Apparate (chemische, pharmazeutische, chirurgische, optische und physikalische).
ll. Maschinen und Apparate für elektrische Beleuchtung und Kraftübertragung, Erzeugung und Installation.
mm. Betriebe als Installateure beschäftigte Arbeiter:
(a) bei unterirdischen Strassenleitungen und im Innern von Gebäuden;
(b) und an Häuserfronten, auf Dächern, an Telegraph- und Telephonsäulen.
nn. Piano-, Orgel- und andere Musikinstrumentenfabriken.
oo. Lampenfabriken.
pp. Uhrenfabriken.
qq. Capselfabriken.

V. Textil-Industrie.

a. Flachsbrechereien.
b. Hanfspinnereien.
c. Seilerwarenerzeugung.
d. Jutespinnereien und -Webereien.
e. Leinewebereien.
f. Baumwollreissereien und -Spinnereien.
g. Schafwollspinnereien, -Webereien und -Appreturen.
h. Watte-Erzeugung.
i. Deckenfabriken.
k. Strickgarnfabriken.
l. Bleichereien, Färbereien, Druckereien, und Appreturanstalten.
m. Posamentierwarenfabriken.
n. Tricotwarenfabriken.
o. Zwirn- und Waschknopffabriken.
p. Teppichfabriken.
q. Regen- und Sonnenschirmfabriken.

Tabelle III

| BERUFSARTEN und BERUFSGRUPPEN | Betriebsunfälle kommen auf je 100 Personen nach Dauer der Erwerbsunfähigkeit | | |

VI. Bekleidung und Reinigung
unter Verwendung von Maschinen oder Motoren

a. Hut- und Mützenfabriken.
b. Kleiderconfection.
c. Strohhutfabriken.
d. Schuhfabriken.
e. Bettfederreinigungsanstalten.
f. Chemische Putzereien.
g. Federfärbereien.
h. Teppichklopfanstalten.
i. Waschanstalten.
k. Badeanstalten.

VII. Chemische Industrie.

a. Apothekerbetriebe.
b. Fabriken zur Erzeugung chemischer Producte.
c. Fabriken für pharmazeutische Producte.
d. Fabriken für Explosivstoffe und Zündwaren.
e. Fabriken für Knallpräparate.
f. Erzeugung und Verwendung von Kunstfeuerwerken.
g. Erzeugung und Laborierung von Nitrocellulose-Pulver.
h. Erzeugung und Laborierung von Schwarzpulver.
i. Zündhölzchenfabriken.
k. Leimsiedereien.
l. Knochenmühlen.
m. Knochenfettextractionsanstalten.
n. Spodium- und Kunstdüngerfabriken.
o. Bleistiftfabriken.
p. Druckerschwärze-Erzeugung.
q. Farbenfabriken und Farbmalerei.
r. Lack- und Firnis- und Lackfarbenerzeugung.
s. Tintenfabriken.
t. Schuhwichse-Erzeugung.
u. Asphaltfabriken.
v. Theerproductefabriken.
w. Salzsiedebetriebe.
x. Parfümeriefabriken.
y. Seifenfabriken.

VIII. Heiz- und Leuchtstoffe, Öle.

a. Briquettefabriken.
b. Leuchtgasfabriken (ohne Rohrlegung und Installation).
c. Betriebe von elektrischen Beleuchtungsanlagen.
d. Kerzengiessereien, -Ziehereien.
e. Margarin- und Fettfabriken.
f. Ölfabriken, -Raffinerien.
g. Schmierfettfabriken.

IX. Nahrungs- und Genussmittel
unter Verwendung von Maschinen oder Motoren.

a. Bäckereien und Biscuiterzeugung.
b. Chocoladefabriken.
c. Jam-, Syrup- und Fruchtweinfabriken.

d. Conserven- (vegetabilische und animalische) Fabriken.
e. Gewürz- und Senfmühlen.
f. Fleischselchereien und Wurstfabriken.
g. Frucht-, Gemüse- und Kräuterdarrereien.
h. Kaffeebrennereien.
i. Kaffeeverleseanstalten.
k. Kaffeesurrogatfabriken und Cichoriedarrereien.
l. Butter- und Käsefabriken.
m. Stärke- und Sagofabriken.
n. Getreide- und Reismühlen.
o. Zuckerraffinerien und Rübenzuckerfabriken.
p. Branntweinbrennereien.
q. Brauereien.
r. Mälzereien.
s. Essigfabriken.
t. Liqueurfabriken.
u. Mineralwasserfabriken.
v. Spiritusraffinerien.
w. Tabakskerbereien.
x. Fischdarrereien.
y. Fischräuchereien.
z. Fischselchereien.
aa. Stockfischklopfereien.

X. Papier, Leder, Gummi mit Verwendung von Maschinen oder Motoren.

a. Papierfabriken.
b. Bunt- und Glacépapierfabriken.
c. Tapetenfabriken.
d. Papiersäckefabriken.
e. Cigarettenpapierconfection.
f. Wachs-, Pergamentpapier- und Ledertuchfabriken.
g. Cartonnagewaren- und Papierstrickwarenconfection.
h. Dach-, Glas- und Schmirgelpapiererzeugung.
i. Ledererzeugung und Gerbereien.
k. Riemen- und Treibriemenconfection.
l. Sattlerwarenerzeugung.
m. Taschner- und Ledergalanteriewarenerzeugung.
n. Gummiwarenerzeugung.

XI. Holz- und Schnitzstoffe.

a. Holzsägereien.
b. Bürstenholzerzeugung.
c. Drechslereien, Schnitzereien.
d. Schirm-, Schirmstock- und Stockfabriken.
e. Fasserzeugung.
f. Holzschuhe- und grobe Holzwarenerzeugung.
g. Holzschnittwarenerzeugung (Parkette, Fassdauben u. s. w.).
h. Holzwarenerzeugung.
i. Holzkurz- und Galanteriefabriken.
k. Imprägnierungsanstalten.
l. Kistentischlereien.
m. Korkschneidereien.

Tabelle VI

BERUFSARTEN und BERUFSGRUPPEN	UNFALLSCHADENBETRÄGE AN					
	vorübergehende Erwerbsunfähigkeit	Kaufwerte der [illegible] Invaliditätspension		Kaufwerte der		Total aller Unfallschäden	Auf je 100 beobachtete Personen kommen an Unfallschaden	Auf je 100 Gulden Lohnsumme kommen an Unfallschaden (Gefahrprocent)
		[illegible]	theilweise	Witwen-Pension	Waisen-Pension			
I. Verkehr und Handel								
[illegible]								
[illegible]								
[illegible]								
[illegible]								
etc., etc., etc.								
(Die vollständige Liste der Berufsarten und Berufsgruppen siehe weiter hinten.)								

Tabelle VII

BERUFSARTEN und BERUFSGRUPPEN	Zahl der Verletzten durch							Auf je 100 beobachtete Personen kommen Verletzungen durch						
	Quetschwunden	Schnittwunden	[illegible]	Knochenbrüche	Verrenkungen	Vergiftungen	Sonstige Unfälle	Quetschwunden	Schnittwunden	Brandwunden	Knochenbrüche	Verrenkungen	Vergiftungen	Sonstige Unfälle
I. Verkehr und Handel														
a. Dampfschifffahrtunternehmungen														
b. Schifffahrt, Binnensee-, ohne Dampfbetrieb...														
[illegible]														
d. Ruder- und Segelbootvermietungsanstalten														
etc., etc., etc.														
(Die vollständige Liste der Berufsarten und Berufsgruppen siehe weiter hinten.)														

Tabelle VIII

BERUFSARTEN und BERUFSGRUPPEN	Zahl der Betriebsunfälle mit Verletzungen der Körpertheile als																				
	Ein Auge	Zwei Augen oder das zweite Auge	Rechter Arm oder rechte Hand	Linker Arm oder linke Hand	Beide Arme oder Hände zugleich	Rechtes Bein oder rechter Fuss	Linkes Bein oder linker Fuss	Beide Beine oder Füsse zugleich	Kopf und Hals, ausgenommen Augenverletzungen	Brust	Rücken	Schultern	Rippen	Becken (Hüften)	Leistenbrüche	Sonstige und mehrfache Rumpfverletzungen	Mehrere Körpertheile, als Arme, Beine, Kopf, und Hals und Rumpf	Ganzer Körper	Erstickt	Ertrunken	Sonstige tödtliche Verletzungen Erfrieren, Blitzschlag, u. s. w.)
I. Verkehr und Handel																					
a. Dampfschifffahrtunternehmungen																					
b. Schifffahrt, Binnensee-, ohne Dampfbetrieb...																					
c. Flussüberfuhren																					
d. Ruder- und Segelbootvermietungsanstalten ...																					
etc., etc., etc.																					
(Die vollständige Liste der Berufsarten und Berufsgruppen siehe weiter hinten.)																					

n. Strohflechtereien.
o. Möbelerzeugung.
p. Rahmen- und Goldleistenfabriken.
q. Rouleaux- und Jalousienfabriken.
r. Schuhleistenfabriken.
s. Brennholzzerkleinerungsanstalten.
t. Wagnereien.
u. Bürstenbindereien.
v. Weiderohr- und Korbflechtereien.
w. Horn- und Elfenbeinschneidereien.
x. Horn-, Steinnutz- und Perlmutterknopffabriken.
y. Meerschaum- und Bernsteinverarbeitung.

XII. Polygraphische Gewerbe.

a. Buchdruckereien.
b. Zeitungsdruckereien und Stereotypiranstalten.
c. Steindruckereien und Lithographiranstalten.
d. Zinkographieanstalten, Kupfer- und Stahldruckereien.
e. Lichtdruck- und Lichtbildererzeugung.
f. Buchbindereien.
g. Linieranstalten.

No abstract of this paper has been supplied by the Author. This paper consisting only of schedules an abstract would not be feasible, and those interested can easily ascertain the details from the paper itself.

THE CLOSING OF THE BOOKS BY COMPANIES DOING BUSINESS IN VARIOUS COUNTRIES.

BY

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Let me begin by expressing my lively satisfaction at the meeting of the Actuaries in Congress in this country. Not only because it gives me an opportunity of visiting the United States of America, which has always been my dearest wish, but also because I think it necessary that all those Europeans who in former years have occasionally written or spoken in less favorable terms about the American Life Assurance Companies should come here to expiate their offence and to deliver their "poenitet me peccasse"! The causes of these unfavourable opinions were distrust and ignorance of the true facts. Without going into the reasons, I may state that I have known the times when a Dutchman who left for America used to be spoken of as an individual who was obliged to hide himself from the eye of justice, on account of some crime, and therefore selected a country where there was no justice. Even to this day there are some Hollanders, aye, and I think some Europeans outside Holland, who consider it a damning proof of a man's pervertedness if he dares to openly declare that he has invested some money in American stocks.

As regards the American Life Assurance Companies, nothing has been more instrumental in taking away this distrust on the part of the Europeans than the three congresses of actuaries held at Brussels, London and Paris. We have there got to know and appreciate one another; we of the other side of the pond have begun to see that the American Life Assurance people treat the matter with the same earnestness as the Europeans; that they are well informed about all that is being written concerning our profession in Europe; that if their opinions differ in some respects from those of Europeans they are able to give satisfactory reasons for it; in a word, that they need not yield the palm to us as regards branch knowledge and integrity of management, and that they surpass us in enterprise.

Before I go any further I wish to mention a fact which has often given rise to suspicion on the part of the Europeans, and which, even where this suspicion does no longer exist, remains a mystery to many of us. I am referring to the publishing of the annual reports of the American Life Assurance companies at the beginning of January.

In most of the European companies the book-year runs from the first of January to the 31st day of December. A few companies make an exception to this rule, but that does not affect in principle the matter under discussion. With the American Assurance Companies the assurance year always ends on the 31st of December of each year. Some small European companies, whose business is limited to a small radius, are able to ascertain comparatively soon the results of their transactions, but even in their case it takes a few months before they can publish in the pre-

scribed form the final documents required. Those companies that are doing business in various European states generally hold their annual meetings in June, publishing their reports of the previous year's doings before July, and in order to do this they have to work hard with a big staff. Can it be wondered at that the directors of these companies are surprised to hear that the big American companies, whose area of action comprises the whole world, are able to comunicate in detail, as early as the tenth or fifteenth of January, the results of their business? Can we blame those who already had little confidence in all that comes from America, if they think the American companies have only "made something" of their reports and that the figures published deserve little credence? Then, of course, there is a little jealousy in it. For one cannot help picturing to himself what a blessing it would be if we could say good-bye to the old year with all its weal and woe, soon after January, in order to devote our whole energy to the development of the business of the new year.

We know now that our American colleagues are not the men to "give short weight," or to publish unreliable figures in official documents, but that is exactly why I think it of importance to consider at this congress the arguments for and against the American usage. That not all the American colleagues hold with their native custom appears from a paper read by James W. Alexander, Esquire, before the National Convention of Assurance Commissioners at Columbus, Ohio, in September, 1902, published under the title of "The Ideal Company." For he says:

"In my own judgment it is not consistent with accuracy to eliminate from the companies' reports the great volume of new business usually transacted toward the close of the year and in process of collection, especially as a few questions would disclose how much was reported at the head office as paid and how much was being collected. The true course, in my judgment, is to allow sufficient time to hear from every part of the world, say six months, and then to reject all business unpaid for."

If we take it for granted that the assurance year ends on the 31st of December, the matter at issue resolves itself into the question whether a company's report should be based upon the position of the company as disclosed by the books at the head office on the 31st of December, or whether we ought to wait with the balancing of these books until we know that nothing has happened before that date to necessitate an alteration in the report if we had known the facts in time.

And I may say at once that one can never declare with absolute certainty that nothing has occurred in some part of the world before the 31st of December, which we only hear of after the report has been drawn up and passed, or that slight clerical errors may not have been made, but for the existence of which some figures would have come out differently. These are little difficulties of a practical nature, which we meet with in every method and which one has to get over as best one can. We are here concerned with the principal thing, or, if you prefer the expression, the theory. Of course, we shall always get nearer the truth the longer we wait before definitely closing the books; but we cannot put that off too long, for that would greatly increase the difficulties attached to the European method. It has therefore been generally assured that reports should be published before the first day of July, and Mr. Alexander is also in favour, as already stated, of six months after the 31st of December, viz., the 1st of July.

If nothing of what comes in after the 31st of December is entered under the old year at the head office, the report, which claims to be giving

the position as it was on the 31st of December, would be found to differ from the truth in some important respects. And if we follow the European method we shall get the greatest possible accuracy, but as already pointed out, we shall not be able to devote all our attention to the development of the business of the new year and would have to sweat away for six months in settling the details of the year gone by. We should lose a good advertisement, for the interest taken in the returns of any year is greatest at the commencement of the year following; after the first of July people begin to think of the probable results of the new year. Then again the legislations of different European States require different forms of reports which, of course, tends to increase the delay. The question therefore remains: whether we should sacrifice a little exactness to the exigencies of practice or whether we shall appreciate the exactitude so highly as to make everything else of secondary importance.

I am inclined to think that one should hesitate before abandoning with a light heart this strict punctuality referred to. The exact moment at which we can declare in any given year, that, according to the registers, the premiums that should have been received during such year have really been collected; that in the reserve entered no item has been included which has ceased to exist, and not one has been omitted which did exist on the 31st of December, that all the entries in all the books at all the branch offices tally with the books of the head office; that moment is unknown to those who follow the American custom. Of course, I am well aware that even under that system such a moment can be fixed, but when we consider what it means to determine this moment, and remember that there is no imperative necessity to take all this trouble, according to the American method, we may be allowed to doubt whether the American companies really trouble about that exact date every year. Nor can the consequences of such neglect fail to follow; the possibility of grave errors and mistakes, nay, of serious irregularities, is not excluded in such cases. We read in the newspapers the other day about some considerable losses, caused by a chief agent who for years had been misappropriating moneys belonging to his company. It strikes me that such a thing could not have been done if the man's exact balance of account had been ascertained every year, to be brought forward each succeeding year. I suppose an inspector visits the branch offices at irregular intervals, carefully inspects the books and cash in hand, comparing the agent's balances with this as well as the unpaid bills; but even then the control fails, the value of which cannot be overestimated, and which we get by comparing at the head office, at a fixed uniform date, all the entries of the branch offices with those of the head office. The books could be closed at an earlier date, for instance the 30th of September, so that, even if one followed the European method, one could still get the report ready at the beginning of the following year; but this would be shifting the course of the book-year and would result in an irregularity as great as the one we want to evade; the report would no longer give the result of the calendar year.

Now it cannot be denied that the result of nearly all calculations, the reserve-valuation included, are only rough estimates, which generally differ considerably from the practical results. This is why it is so risky to offer an opinion regarding the solvency of a company. This well-known truth has probably played a great part in making the Americans accept their peculiar method, as it was thought that the want of exactness attached to it would not materially increase the likely inaccuracy always adhering to valuations. But we are here concerned with the practical results, which we can ascertain with certainty; we deliberately give

figures which we know to be the wrong ones, and strike out a path which may lead to ruin. It will be said that the inaccuracy in question can be obviated by stating that the report has been extracted from the books as they were made up at the head office on the 31st of December, but in that case we are stating at the same time, that what we call the balance of the book-year 19— is not a true balance. We must not underestimate the chances of great deviations. Through unforseen circumstances things may happen toward the end of the year materially affecting the results of that year. There may be an unusual number of cancelled policies about that time, or a good many extra assurances effected, the value of some of the assets may suddenly go up or decline; some of the company's debtors may fail, etc. All these events may not have any influence of importance on the solvency of an established and consolidated company, but they certainly will affect the results of a commercial year. At the same time such occurrences may cause some trouble to companies following the European method as well. Suppose a company enters its stocks on the balance sheet at the prices quoted on the price-lists for the 31st of December, and there were to be a financial crisis in April following, causing the values to go down considerably, then the directors know that these securities have been entered too high on the balance sheet. But this can be at once put right by carrying the difference caused by the decline in price to a special reserve account on the balance sheet, or, if there is already a reserve account on it for investments, by taking this difference off the amount appearing under that heading.

It stands to reason that the matter greatly depends on the way the books are kept and on the general business management, and this is another problem which, I think, has not been properly threshed out.

If the general management has been greatly decentralised, i e., if separate branch offices have been opened in small places or districts, which are independent of one another, and managed by trustworthy men, the latter will be able to balance their books in a comparatively short time, get their reserve-calculations ready, and put together the balance-sheet of their branch office. And if these documents are then immediately sent to the head office, the latter, by adding together the different results, can make out the balance sheet for the whole company, and draw up the report. One would, of course, have to see that there be a proper check on the different branch offices, so that there need not be any question about the entries and figures sent to the head office being correct. In the case of extensive countries, such as America, Russia, Germany, etc., one might have sub-divisions, so that, for instance, the balance sheet of the American branch office could be got up by adding together the different entries of the balance sheets of the various States.

Apart from the great expenses entailed by such management, there is this difficulty, that the legislations of the different countries do not all require the same nomenclature in the reports or the same way of estimating the reserves. Assuming, for instance, that in a country where the head office is established the reserve has to be calculated on a basis of 3 per cent., what is one to do at a branch office in a country allowing a calculation at 4 per cent.? The only solution would be to make the calculation at all the branch offices at the lowest percentage prescribed by any country. But with this percentage the tariff rates are closely allied, which means that in the different countries different tariffs would have to be introduced, which again would establish a peculiar proportion between the figures on the final balance sheet and the figures in the report. And the matter would become still

more complicated in countries whose governments compel the whole company to work according to their views, like, for instance, the Kaiserlicher Aufsichts-amt at Berlin requires.

All this goes to show that the drawing up of reports of companies doing business in different countries is well-nigh impracticable if accuracy has to be observed in every respect, and this may be said of both the European and the Amercan methods. After all, one is obliged to resort to some expedient if we are to get somewhere near the truth. The question to be solved is: How can we make up reports giving the position of a company on the 31st of December with sufficient accuracy if these companies are doing business in several countries, while obviating the necessity of such companies having to exhaust their energy in the getting up of such reports?

It has been said that no profession is less fit to be controlled by the State than that of a life assurance company, and this is true in many respects. The government officials, from their point of view, are quite right in making stipulations the effect of which is to swell the reserve so much as to render a deficit impossible, and in requiring the reserve moneys to be invested in securities the sterling value of which surpasses anything that has been offered in the market. If they were also to prescribe what mortality tables are to be used; the maximum of commission to be paid out to the middlemen; how much should be spent on general expenses; we should get some system in the regulations, a thing which is now wanting. I believe that if this were tried, it would soon be seen that it is impossible to make the same restrictions for every country. Indeed, to make this impossibility feasible is left by the governments to the directors of the companies. For is it not foolish of them to require that, in making the reserve calculations, no attention should be paid to the gross premiums or to ignore the fact that the rate of interest differs from that of other countries; that there is a sort of investments which are safe in one country and unsafe in another; that in some parts of the world considerably less commission has to be paid and less general expenses are necessary than in others. The government officials *cannot* know all this, nor *do* they know it. To give only one example: I have often noticed that a security which in some country or other is considered to be "as safe as the bank," is rejected by the inspectors of some other government, and that an investment that the representatives of one nation look upon as being safe beyond all doubt, could not be made by the direceors of companies in other countries, because the latter generally think these values should not be recommended.

Whether they like it or not, the governments will finally have to adopt the system of freedom and publicity with certain reservations. Once people are convinced that life assurance is not a trust, but a trade, they will also understand that life assurance, like all other concerns, must be allowed to freely develop itself, and that it is impossible to do business if hemmed in by too many restrictions. I once wrote that every assurance company ought to be treated like an individual who should be managed according to his own natural disposition, character and surroundings. What is excellent for (the) one may be the wrong thing for another, and what reasons could there be for placing more confidence in the integrity, capabilities, branch knowledge, financial genius of the government official than in that of intelligent and well educated private persons. It will be said, because the government's representatives have no interest in the business; but, granting this to be true, the very absence of this interest leads to impossible demands being made, and, as

might have been expected, the parties assured are not only protected, but are unduly favoured at the expense of the shareholders, the founders and the staff.

I am pointing out all these things because I think the reports of the companies could be got up with greater accuracy and despatch if the governments would confine themselves to the prescribing of the required form of the reports, leaving the public to judge for themselves. In fact, the reports have really lost the greater part of their value if the government regulate everything. They then only serve to satisfy the curiosity about the turnover; one may be unconcerned about everything else; the government will see to that! Unfortunately this unconcern is not always deserved, for, with great respect, even government officials sometimes make mistakes, as has been unmistakably proved of late years and in different places.

I may be wrong, but I have reason to believe that the American companies will confirm all I have said. Is it not a fact that the big companies here have two different reports, one for the general public, roughly giving the particulars of the results, and one more elaborate, giving full details, which is not exactly kept secret, yet is not meant for the public at large? This is very logical indeed, but it is hardly in accordance with the principle, held sacred in other transactions in the United States, that the general public, that is the great American nation, is the highest judge in all matters of national importance.

In nearly every civilised country in the world the head of a commercial concern, or a manufacturer, is at liberty to place his wares in other countries without having to obtain a definite official permission. A maker of bicycles, for instance, will export his machines all over the globe without anybody stopping to enquire whether the public will get good manufactures or bad ones for their money, or whether they pay too much or too little. One can understand the life assurance business being treated somewhat differently, for there is often such a long period between the payments and the "delivery," that there is no harm in keeping an eye on the contractors in this case. But this ought not to be exaggerated, which it is if a company, started in a certain country and having its office in such country, is treated as if it were started and established in another country. If the government of one country allow a company, started and having its seat in another, to effect assurances in the former, it should follow that this company can act there according to its own laws, by-laws and regulations. If the governments hesitate to allow *that*, they had better refuse a permit altogether, for they are compelling the companies to resort to expedients that are not likely to enhance its reliability. Let us fancy to ourselves a company working in various countries, making out reports as required by each country; should it make up its balance sheet by adding together the different entries of the separate balance sheets? Or should it make out a general one without paying attention to each individual balance sheet got up according to the laws of the country the branch office is established in? It seems to me that a distinction should be made between mutual companies and genuine limited companies. I cannot see what interest a mutual company can have in extending its transactions over a very great area, once it has reached an extent allowing the risk to be divided amongst a sufficient number of assured, it will, I think, be indifferent to any further extension. It has been said that the expenses would become proportionately smaller through a greater turnover, but experience does not confirm this. With limited companies the case is different, because with them only part of the profits

is set apart for the assured, the remainder being always divided amongst about the same number of people. The endeavour of governments to get as much profit as possible reserved for the assured is antagonistic to the principle of limited companies, which are obliged to look after their shareholders. The division of profits amongst the assured is no necessity with such companies; it is only a means of advertising among mutual companies, and if the governments want to interfere in this matter they will also have to meddle with the way, say, a maker of bicycles has to divide his profits. The assertion that the government of a country called A, in which a company established in B effects assurances, should be allowed to control the management of business in C, will not hold good. The result might be that the company would be controlled, criticised and ordered about in one and the same country by a number of governments at the same time. It is possible that the governments would be kind enough to all adopt the same system, but the more or less likely kindness does not constitute a legal stipulation. Nor is it consistent with international law that the government of another country should grant a concession to a company from a foreign country as if it were a local company, on condition that it should conform to the laws of this other country over which it had jurisdiction. As the legislations of the two countries differ, this would not be feasible. The very saying: "One cannot serve two masters" shows that this is the acknowledged general opinion. It seems to me that there is only one remedy, enabling the governments to have their own way without compelling the companies of each country to relinquish their independence. That remedy is the following: Let the governments that want to supervise the investments made by local companies, give them the right, subject to their permission being obtained, to invest part of their moneys in shares of foreign life assurance companies. If this is granted, the companies can, if they like, start companies in other countries, which can conform in every respect to the laws existing over there, and which, as all the shares, or the greater majority, are in the hands of the mother establishment, will have to be dependent on it in all matters in which the governments do not interfere. Before granting permission, the governments concerned could ascertain whether the interests of the investors were sufficiently safeguarded in the country where the permit of establishment was applied for. In such countries the reports could then be made according to the local prescriptions and usage, while the mother establishment, in getting out the report drawn up for its own country, could append the debit and credit balances of the other balance sheets. The reports could then be ready in a comparatively short time and accuracy would not have to be sacrificed to despatch. We should then also have a certain control exercised by each government over their own companies at home and the supervision of a company in one country by the government of another would cease to exist without the interests of the assured being jeopardised. The permission to companies to operate in countries other than their own could then, of course, be dispensed with, and this, I think, would prevent a good many abuses.

Meanwhile it remains to be seen whether this arrangement is feasible. One would have to make sure of the benevolent co-operation of all the governments, the same rights being accorded to the smaller and greater, the weaker and more powerful ones. As it is, the smaller ones are swamped with companies, established in the more important countries, but the latter are very particular in giving permits to the companies belonging to smaller countries. If my proposal were accepted the weak ones would gain, while the larger ones would be the losers; for the former

being on the safe side, and this generosity of great powers toward the weak reminds me of the wolf and the sheep in the fable.

Yet something might be done in the direction of my suggestion, especially if the life assurance people in the lesser states made a beginning. The legislators of different States have gradually come to conclusions and given some intepretations which, on close examination, will not stand the test of logical reasoning. A kind of official criterion of respectability and solvency has been established by them, which in many cases seems extremely unreasonable.

It is evident that the making up of a company's report is closely connected with other considerations of great importance and in the first place with the relations of the companies in the different countries toward the various governments, and these always disclose a false position. It has been said somewhere—I believe by our Canadian colleague, *Macauly*—that we should be very careful in insisting upon State control in countries where it has not been introduced, and this is the verdict of a gentleman who spoke from experience and had nothing but praise for the officials with whom he came in contact. Probity, integrity and branch knowledge are better guarantees to the assured than the strictest State supervision.

I should like to draw your attention to one more remarkable fact: We have had in our line, and still have, a number of very able mathematicians and they have taught us with inestimable zeal and shrewdness how to apply the rules of the law of probability in the exercise of our business. And yet it is surprising to see how few mathematicians there are who, if called upon to supervise this branch, are prepared to rely on the exactness of their own calculations. Their apprehension that the possibility of a deviation might endanger the interests of a company is so general that the majority of them would prefer the company to have the whole of their capital assured in hand, with some extra reserve in the bargain. This fear seems to be explained by the fact that it is not enough to be an able mathematician to make a successful director of a company and to manage it properly.

It is not for me to make any proposal to the congress. I am too much convinced that even if they adopted a resolution to that effect, each country would calmly go on in its usual way. Perhaps it is the domain of social legislation to gradually make life assurance a matter of State regulation. But as long as this is not the case we had better abstain from prescribing how the business should be conducted. In some countries we find a State life assurance establishment in addition to the private institutions. This might be recommended, at least if the State does not go in for subsidising. Those who have more confidence in the management of such an institution than in the directors of private undertakings, can take their money there and it will be a good test of the greater or lesser efficiency of the managers of these State organisations.

I conclude by expressing a wish that this paper may lead to a careful and impartial consideration of the theory of State concessions with which the making up of the reports is so clearly connected.

DE LA CLÔTURE DES ÉCRITURES PAR LES COMPAGNIES D'ASSURANCES QUI OPÈRENT DANS PLUSIEURS PAYS.

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Qu'il me soit encore permis de déclarer tout d'abord que la réunion du Congrès des Actuaires dans ce pays me fait un plaisir particulier, non seulement parce qu'il me fournit l'occasion de visiter l'Amérique, ce qui toute ma vie a été un de mes plus chers projets, mais aussi parce qu'il me paraît nécessaire que tous les européens qui, auparavant, ont parlé dans un sens peu favorable des compagnies américaines d'assurances sur la vie, abandonnent leur première opinion et déclarent: « Poenitet me pecasse.» Les causes de cette opinion défavorable résident dans la défiance et l'ignorance. Sans insister plus longtemps, je me contente de faire remarquer que j'ai connu le temps où l'on parlait des hollandais émigrant en Amérique comme de gens qui devaient, à cause d'un crime, se dérober aux yeux de la police et par conséquent chercher un pays où il n'y avait point de justice. Encore maintenant, il y a des hollandais, — je soupçonne également d'autres européens, — qui considèrent que le fait d'avoir placé son argent en fonds américains, constitue un acte de perversion.

En ce qui concerne les compagnies américaines d'assurance sur la vie, rien n'a plus contribué à chasser la méfiance des européens à leur égard que les trois congrès des actuaires tenus à Bruxelles, à Londres et à Paris. Là, les personnalités ont appris à se connaître et à s'estimer l'une l'autre; nous avons constaté que les assureurs américains sur la vie traitent les affaires d'assurance aussi sérieusement que les Européens, qu'ils sont au courant de tout ce qui s'écrit sur cette branche dans le vieux monde, qu'ils savent justifier l'écart que leurs conceptions présentent avec les nôtres, en un mot qu'ils ne sont pas en arrière sur les européens sous le rapport des connaissances techniques et l'intégrité de l'administration et qu'ils nous surpassent dans l'esprit d'entreprise.

En premier lieu, je désire parler de ce qui a fait souvent naître la méfiance des européens, et de ce qui est resté incompréhensible pour ceux qui n'ont plus de méfiance. Je vise ici la publication, dans les premiers jours de janvier, des bilans des compagnies américaines d'assurances sur la vie.

L'exercice pour la plupart des compagnies européennes court du premier janvier à fin décembre. Quelques-unes font exception; mais le principe de notre thèse n'est pas atteint pour cela. Pour les compagnies américaines l'exercice d'assurance expire toujours le 31 décembre.

Quelques petites sociétés en Europe, qui ont considérablement limité leur champ d'action, arrivent à faire connaître dans un temps relativement court les résultats de leurs opérations, mais même à celles-là il faut quelques mois avant de pouvoir publier en due forme les documents requis. Les compagnies qui opèrent dans plusieurs parties de l'Europe tiennent le plus souvent leurs assemblées générales annuelles au mois de juin et publient avant juillet les bilans de l'exercice précédent.

Encore, pour y arriver, doivent-elles se livrer à un travail ardu avec un nombreux personnel. Est-il surprenant alors que les directeurs de ces compagnies s'étonnent de constater que les assureurs américains, qui font rayonner leur activité sur le monde entier, sont à même de communiquer déjà le 10 ou le 15 janvier le détail de leurs opérations? Dans l'occurrence, peut-on savoir mauvais gré à ceux qui ont peu de confiance à l'égard de tout ce qui est de provenance américaine, de penser que les sociétés américaines rédigent à la légère les rapports sur leurs exercices et que les chiffres publiés sont peu dignes de foi? Peut-être en cela y a-t-il aussi un peu de jalousie. Car, on ne peut s'empêcher de reconnaître l'avantage qu'il y aurait si, dès le mois de janvier, on n'avait plus à s'occuper de l'exercice écoulé pour consacrer toutes ses forces au développement des affaires de l'exercice qui vient de s'ouvrir.

Nous savons maintenant que nos collègues américains ne sont pas des hommes qui agissent sans discernement, ou qui se premettraient d'étaler des chiffres inexacts dans les documents officiels. C'est justement pourquoi j'estime important de poser devant le Congrès les arguments pour et contre l'usage américain. Que tous nos collègues américains ne tiennent pas pour la coutume de leur pays, cela résulte d'un travail lu par M. *James W. Alexander* devant la convention nationale des commissaires d'assurance à Columbus (Ohio) en septembre 1902 et publié sous le titre: « La Compagnie Idéale.» L'orateur disait en effet: « A mon avis, il n'est pas compatible avec l'exactitude de ne pas considérer pour l'établissement des bilans des compagnies la grande masse de nouvelles affaires traitées d'ordinaire vers la fin de l'année, surtout lorsque quelques questions mettraient au jour combien de paiements et d'encaissements ont été enregistrés au siège de la compagnie. Le meilleur système, selon moi, consisterait à prendre le temps nécessaire, soit six mois, pour connaître toutes les opérations traitées et alors de rejeter toutes les affaires qui ne sont pas de rapport.»

Si nous considérons comme acquis que l'année d'assurance expire le 31 décembre, reste la question de savoir s'il faut baser le rapport d'une compagnie sur la situation telle qu'elle est indiquée à la fin de l'année par les livres du bureau central ou si, pour la clôture des écritures, il faut attendre jusqu'à ce que l'on soit assuré que, avant cette date, il ne s'est rien produit qui, si l'on en avait pris connaissance en temps opportun, eut entraîné une modification du bilan.

Permettez-moi de faire remarquer immédiatement que l'on ne peut jamais déclarer avec une absolue certitude qu'il ne s'est rien produit avant le 31 décembre dont on a seulement connaissance après l'établissement et que, dans la comptabilité il n'y a pas eu quelques petites erreurs dont l'existence aurait fait ressortir autrement certains chiffres. Ce sont là petites difficultés de la pratique, qui se rencontrent dans chaque méthode, et que l'on doit chercher à surmonter le mieux que possible. Il s'agit ici de la question essentielle, ou, si vous préférez l'expression, d'une question théorique; on se rapprochera naturellement d'autant plus de la vérité que l'on attendra davantage pour la clôture définitive des livres; toutefois on ne peut la différer trop longtemps, sinon, les difficultés inhérentes à la méthode européenne ne feraient que croître sensiblement. C'est pourquoi l'on a décidé généralement de publier le rapport annuel avant le 1er juillet, et M. *Alexander,* comme on l'a vu plus haut, est également partisan de la publication de ce rapport six mois après le 31 décembre, soit donc le premier juillet.

Lorsqu'au bureau central on ne passe plus dans les écritures de

l'année écoulée ce qui entre après le 31 décembre, le bilan qui a la prétention de donner la situation exacte à cette date même, pourra présenter de grands écarts avec la réalité, et si l'on suit la méthode européenne, l'on arrivera à l'exactitude la plus scrupuleuse possible, mais l'on ne pourra, comme nous l'avons fait ressortir précédemment, se consacrer entièrement au développement de l'entreprise pendant l'exercice commencé, et, durant un semestre, il faudra ne s'occuper que des opérations de l'année antérieure.

On perdra un moyen de réclame, car les résultats d'une année présentent surtout de l'intérêt au début de celle qui la suit immédiatement. Après le premier juillet, l'on s'inquiète déjà des résultats de l'exercice en cours. A cela s'ajoute encore que la législation de certains États européens exige des formes diverses pour les rapports annuels, ce qui, naturellement, tend à augmenter le retard.

La question reste donc de savoir si nous devons sacrifier un peu de l'exactitude aux exigences de la pratique, ou si nous devons priser l'exactitude au point de considérer tout le reste comme d'importance secondaire.

J'incline à croire qu'il faut hésiter avant d'abandonner d'un cœur léger cette stricte ponctualité dont il vient d'être question. Celui qui adopte la méthode américaine ne connaît pas le moment précis auquel il peut certifier que, suivant les écritures, les primes qui *devaient* être perçues pendant une année, l'ont été réellement; que dans les réserves portées en compte l'on n'a repris aucun poste qui avait cessé d'exister; et qu'il n'a été omis aucun poste existant au 31 décembre; que tous les postes des livres des succursales concordent absolument avec ceux du bureau central.

Naturellement, je sais bien que même avec ce système, un tel moment peut être fixé, mais si nous considérons ce que c'est que de déterminer ce moment et qu'il n'y a pas d'impérative nécessité de se donner toute cette peine, suivant la méthode américaine, il nous est permis de douter que les compagnies américaines s'inquiètent réellement de cette date exacte chaque année. Les conséquences d'une telle négligence ne peuvent manquer de s'ensuivre; la possibilité de graves erreurs et fautes, voire même de sérieuses irrégularités n'est pas exclue dans l'occurrence. Naguère, les journaux parlaient de pertes considérables occasionnées par un agent principal qui, pendant de longues années, s'était approprié les fonds de sa compagnie. Il me paraît que chose semblable n'aurait pu se produire si son solde de compte avait été scrupuleusement établi chaque année, pour être reporté sur l'exercice suivant. Je suppose qu'un inspecteur visite les bureaux auxiliaires à des époques variables, vérifie avec soin et les livres et les fonds en caisse, compare les découverts des agents avec les factures non payées, mais même alors manque encore le contrôle qu'on ne peut estimer assez haut et que l'on obtient lorsqu'à une seule date uniforme le bureau central compare les écritures de toutes les succursales.

On pourrait clôturer les livres à une date plus rapprochée, par exemple fin septembre, de sorte que, même si l'on s'en tenait à la méthode européenne, l'on serait cependant prêt avec le bilan au commencement de l'année suivante. Mais de cette façon on scinderait l'exercice et l'on commettrait une erreur aussi grande que celle que l'on veut éviter: de nouveau, le bilan ne donnerait plus les résultats de l'année du calendrier.

On ne peut nier que les résultats de presque tous les calculs, y com-

pris la mise en compte des réserves, ne sont autre chose que des estimations brutes qui, la plupart du temps, s'écartent considérablement des résultats de la pratique. C'est pourquoi il est si dangereux d'émettre un jugement sur la solvabilité d'une compagnie. Vraisemblablement cette vérité bien connue a été pour beaucoup dans la décision des américains, d'adopter leur méthode particulière: ils ont pensé que le défaut d'exactitude que cette méthode comporte n'augmenterait pas matériellement la notable inexactitude qui s'attache toujours aux estimations. Mais, nous nous occupons ici des résultats de la pratique que nous pouvons établir avec certitude; de propos délibéré nous donnons des chiffres que nous savons inexacts et nous entrons dans une voie pouvant nous mener à la ruine. On dira qu'il peut être obvié à l'inexactitude en question en stipulant que le bilan a été extrait des livres tels qu'ils sont au 31 décembre au bureau principal; mais dans ce cas, nous affirmons en même temps que ce que l'on appelle: rapport sur l'exercice 19.. n'est pas un rapport véritable. Surtout que l'on ne perde pas de vue les chances de grandes déviations. Par des circonstances fortuites, il peut se produire, à la fin de l'année, des événements affectant matériellement les résultats de cette année: un nombre inusité de polices peuvent être annulés à ce moment ou un nombre extraordinaire d'assurances conclues; les valeurs en portefeuille peuvent monter ou baisser soudainement, des débiteurs de la compagnie peuvent faire faillite, etc.... Tous ces événements peuvent ne pas influencer fortement la solvabilité d'une compagnie solidement établie et respectée, mais ils affecteront les résultats des écritures d'une année commerciale. Des faits de ce genre peuvent entretemps créer des difficultés aux compagnies qui suivent la méthode européenne. Qu'on se figure, par exemple, une compagnie inscrivant dans son bilan ses valeurs calculées d'après le cours coté au 31 décembre et qu'en avril suivant éclate une crise financière amenant une baisse considérable des valeurs en question. La direction sait qu'elle a taxé trop haut les valeurs de la compagnie. La chose peut cependant se régler parfaitement en faisant figurer l'écart dans le bilan comme une réserve spéciale ou, s'il y a une réserve pour les placements, en retranchant cet écart de la somme portée sous cette rubrique.

Il va de soi que la chose dépend en grande partie de la comptabilité et de l'organisation générale de l'Administration, et ceci est un autre problème qui, je crois, n'a pas été résolu comme il convient. Lorsqu'on a fortement décentralisé l'administration, c'est-à-dire lorsqu'on a, sur un rayon relativement peu étendu, institué des succursales indépendantes les unes des autres et administrées par des hommes dignes de confiance, ceux-ci peuvent, en peu de temps, clôturer leurs écritures, avoir terminé leurs calculs de réserves et établir le bilan de leur succursale. Si les documents sont immédiatement envoyés au bureau central, celui-ci peut, en additionnant les différentes situations, établir le bilan de toute l'entreprise et rédiger son rapport. Naturellement, il faudra prendre soin qu'un contrôle convenable soit exercé sur chaque succursale, de sorte que le bureau central n'ait aucun doute sur l'exactitude des chiffres qui lui sont adressés. En Amérique, en Russie, en Allemagne, et dans les pays très étendus, on pourrait avoir des subdivisions de telle sorte que, par exemple, le bilan de la succursale américaine pourrait être dressé en additionnant les divers articles des bilans pour les différents États.

Outre les frais énormes d'une telle administration, on est immédiatement arrêté par la difficulté que la législation des différents pays n'établit pas les mêmes exigences en ce qui concerne la forme des bilans

et la façon de calculer les réserves. Pour citer un exemple, supposons que, dans le pays où est établi l'office central, la réserve doit être calculée à 3%, que fera-t-on avec la succursale établie dans un pays où ce calcul doit être fait au taux de 4%? La seule solution consiste à tabler pour tous les bureaux auxiliaires sur le taux du pays qui prescrit l'emploi du taux d'intérêt le plus bas. Mais de ce pourcentage dépend aussi l'élévation des tarifs, de sorte qu'aussi dans les différents pays il faudrait introduire des tarifs différents, ce qui, de nouveau, établirait une proportion particulière entre les chiffres du bilan final et ceux du rapport. Et la chose se compliquerait encore davantage dans les pays dont les gouvernements obligent la compagnie à travailler d'après leurs vues, comme, par exemple, le « Reichsversicherungsamt,» à Berlin, l'exige.

De tout cela, il résulte que la confection des bilans des compagnies qui opèrent dans différentes contrées est un travail presque impossible, lorsqu'on veut observer l'exactitude à tous les égards, et cela s'entend tant pour la méthode européenne que pour la méthode américaine. On est bien forcé de recourir à quelque expédient, si l'on veut se rapprocher de la vérité. La question à résoudre est celle-ci: comment les compagnies qui étendent leur sphère d'action dans différents pays s'y prendront-elles pour que, sans nuire à leur puissance de travail, elles puissent établir des bilans indiquant avec suffisamment d'exactitude la situation au 31 décembre?

Il a été dit qu'aucune profession n'est moins faite pour être soumise à la surveillance gouvernementale que celle de l'assurance sur la vie. Et cela est juste à beaucoup de points de vue. Les fonctionnaires gouvernementaux ont, à leur point de vue, parfaitement raison lorsqu'ils établissent des prescriptions en suite desquelles la réserve devient si élevée que le déficit est rendu impossible et lorsqu'ils désirent qu'elle soit placée en valeurs de tout repos. S'ils devaient prescrire également les tables de mortalité à employer, le maximum de commission à payer aux intermédiaires, le montant des frais généraux à encourir, nous obtiendrions de la méthode dans la réglementation, chose qui fait actuellement défaut. Qu'on l'essaye et l'on s'apercevra bientôt, je crois, qu'il est impossible d'édicter les mêmes règles pour tous les pays. En effet, le soin de rendre possible cet impossible est laissé aux directions des compagnies par les Gouvernements. N'est-il pas absurde de leur part d'exiger que dans le calcul des réserves il ne soit tenu aucun compte des primes brutes? ou d'ignorer que le taux d'intérêt diffère de celui d'autres pays; que tels placements sont sûrs dans un pays et non sûrs dans un autre, que dans certaines parties du monde il y a beaucoup moins de commission à payer et moins de frais généraux à supporter que dans d'autres. Les fonctionnaires gouvernementaux ne peuvent savoir et ne savent pas tout cela. Un exemple: j'ai constaté plus d'une fois qu'une valeur, considérée dans un pays comme affectée du maximum de la solidité, n'est pas acceptée par les fonctionnaires d'un autre pays et qu'un placement, que les fonctionnaires d'un gouvernement regardent comme extra solide, ne peut être fait par les directions des compagnies d'un autre pays, parce que là, généralement, elle est considérée comme indigne de recommandation. Qu'on le veuille ou non, tous les gouvernements, en fin du compte, devront en venir au système de liberté et de publicité avec certaines restrictions. Lorsqu'on est arrivé à la conviction que les compagnies d'assurance sur la vie ne sont pas un trust, mais une entreprise commerciale, l'on comprendra aussi que l'assurance sur la vie doit pouvoir se développer librement comme toutes les entreprises commerciales et qu'il

est impossible de faire des affaires, si elles sont entourées de trop de restrictions. J'ai écrit un jour que chaque compagnie d'assurance sur la vie doit être considérée comme un individu, qui doit être traité suivant ses propres aptitudes, caractère et milieu. Ce qui est excellent pour l'un est détestable pour l'autre. Et quelles raisons peut-on invoquer pour accorder plus de confiance dans l'honnêteté, les talents, les connaissances techniques et financières des fonctionnaires du gouvernement que dans celles de particuliers honnêtes et instruits? On répondra: parce que les employés du gouvernement n'ont aucun intérêt à la chose; mais en admettant qu'il en soit ainsi, l'absence même de cet intérêt est cause que l'on décrétera des mesures impossibles et que, ainsi qu'on pouvait s'y attendre, non-seulement les assurés sont protégés, mais ils sont indûment favorisés aux dépens des actionnaires, des fondateurs et du personnel.

Je relève toutes ces choses parce que, à mon avis, les bilans des compagnies pourraient être dressés avec une plus grande exactitude et avec beaucoup plus de célérité, si les gouvernements se bornaient à prescrire la forme des bilans laissant le public juger par lui-même. A proprement parler, les bilans ont perdu en grande partie leur valeur, si les gouvernements ont tout prescrit. Ils servent donc simplement à satisfaire la curiosité; pour le reste, on peut être tranquille, car le Gouvernement prend soin de tout. Malheureusement, cette tranquillité n'est pas toujours suffisamment méritée, car malgré la considération qu'on peut avoir pour eux, il est juste de dire que les fonctionnaires du gouvernement peuvent se tromper, comme cela a été démontré antérieurement d'une façon péremptoire.

Je ne sais si je me trompe, mais j'ai tout lieu de supposer que les compagnies américaines confirmeront tout ce qui vient d'être dit. N'est-ce pas un fait que les grandes compagnies américaines établissent deux rapports différents, l'un pour le grand public, qui relate sommairement tous les résultats de l'exploitation, l'autre, plus travaillé, plus étendu, contenant tous les détails, qui n'est pas tenu absolument secret, mais qui cependant n'est pas destiné au grand public. Cela est très logique, en effet, mais s'accorde mal avec le principe tenu pour sacré pour toutes les autres opérations, à savoir que le grand public, c'est-à-dire le grand peuple américain, est le juge suprême en toutes choses intéressant la nation. Dans presque tous les pays civilisés du monde, le chef d'une affaire commerciale ou un fabricant est libre de placer ses marchandises dans d'autres contrées, sans que pour cela il ait besoin d'une autorisation officiellement déterminée. Un fabricant de bicyclettes, par exemple, exportera ses machines dans le monde entier, et nul ne s'inquiétera, si le public reçoit de bonne ou mauvaise marchandise pour son argent, ni si peut-être il a payé trop ou trop peu. On peut admettre que les assureurs sur la vie soient traités un peu différemment, car le paiement et la livraison sont souvent si éloignés l'un de l'autre qu'il n'est pas mauvais de surveiller l'opération traitée par les contractants. Mais qu'on n'exagère pas, et on le fait lorsqu'on demande qu'une compagnie fondée dans un certain pays et y ayant son siège, agisse comme si elle était fondée et avait son siège dans un autre. Si un gouvernement accorde à une compagnie fondée et établie dans un autre état l'autorisation de conclure des assurances sur son territoire, il devrait s'ensuivre qu'elle put y travailler suivant ses propres lois, statuts et règlements. Les gouvernements hésitant à donner cette latitude, feront mieux de refuser l'autorisation, car, sinon, ils forcent les compagnies à recourir à des moyens qui ne sont pas de nature à augmenter la confiance qu'elles méritent.

Imaginons une compagnie qui travaille dans différents pays, rédigeant ses rapports comme l'exige chacun d'eux. Cette compagnie doit-elle établir son bilan en additionnant les divers postes des rapports séparés, ou doit-elle, sans tenir compte de ces derniers, dresser un bilan général répondant aux lois du pays où est établie l'agence? Il me paraît convenable de faire une distinction entre les compagnies mutuelles et les sociétés par actions proprement dites. Je ne comprends pas l'intérêt qu'une société mutuelle peut avoir à étendre sa sphère d'action sur un très grand terrain. Lorsqu'elle est arrivée à un degré d'expansion qui lui permet de répartir le risque sur un nombre suffisant d'assurés, toute plus grande expansion lui est, ce me semble, indifférente. On a dit que, par une forte extension, le pourcentage des frais sera moindre; ceci toutefois n'est pas prouvé par l'expérience. Le cas est différent pour les sociétés par actions, parce que chez elles une partie seulement des profits est réservée pour les assurés, le reste étant toujours réparti entre un nombre de personnes presque égal. L'effort des gouvernements pour réserver aux assurés la plus grande part possible des bénéfices est contraire au principe des sociétés par actions, qui sont forcées de prospérer pour leurs actionnaires. Pour ces dernières, la répartition de bénéfices entre les assurés n'est pas une obligation; c'est un moyen de réclame dans les compagnies mutuelles et, si les gouvernements veulent intervenir dans cette matière, ils doivent aussi se préoccuper de la façon dont le constructeur de vélos répartit son bénéfice.

L'on ne peut maintenir l'opinion que le gouvernement du pays A, dans lequel une compagnie établie en B conclut des assurances, doit avoir le droit de contrôle sur les opérations en C. Car, il pourrait ainsi arriver qu'une même compagnie soit contrôlée, critiquée, dans le même État par différents gouvernements en même temps. Il est possible que les gouvernements soient assez bienveillants pour adopter un système unique, mais une bienveillance plus ou moins vraisemblable ne constitue pas une stipulation légale. De même, il n'est pas conciliable avec le droit international qu'un État accorde la concession à une compagnie d'un autre pays, comme si c'était une compagnie locale, à la condition qu'elle se soumette aux lois de ce pays étranger. Comme les législations de ces deux pays ne concordent pas, cela ne serait pas praticable et le proverbe bien connu: « On ne peut pas servir deux maîtres » prouve que cette opinion est générale. Il me paraît qu'il n'existe qu'un seul moyen d'après lequel les gouvernements peuvent remplir complètement leurs intentions, et par lequel les compagnies de chaque pays n'ont pas besoin d'abandonner leur indépendance. Ce moyen, le voici: que les gouvernements qui veulent surveiller les placements des compagnies indigènes leur accordent le droit, subordonné à l'obtention de l'autorisation, de placer une partie de leurs fonds en actions de compagnies d'assurance étrangères. Cette faculté étant accordée, les compagnies qui le désirent ont la faculté de créer des compagnies filiales en d'autres pays, lesquelles peuvent se soumettre à toutes les prescriptions qui y sont en vigueur et qui, parce que toutes les actions, ou du moins la plus grande partie, se trouvent entre les mains de la maison-mère, dépendent de cette dernière dans toutes les affaires dont les gouvernements ne s'occupent pas. Avant de donner l'autorisation les gouvernements en cause pourraient s'assurer si les intérêts des capitalistes sont suffisamment sauvegardés dans le pays où le permis d'établissement a été sollicité.

Dans ces pays-là, les rapports pourraient être rédigés conformément aux prescriptions et usages locaux, tandis que l'établissement central,

dans le rapport qu'il rédige pour son propre pays, sera à même de reprendre les soldes en faveur ou en défaveur des autres bilans. Ces documents pourront ainsi être prêts dans un laps de temps relativement court sans devoir sacrifier l'exactitude à la rapidité. On en viendrait également à la surveillance exercée par chaque gouvernement sur les sociétés indigènes, et la surveillance d'une compagnie d'un pays par un autre État pourrait être abolie sans préjudicier les intérêts des assurés. La conséquence naturelle en serait que la permission accordée aux compagnies de travailler à l'étranger tomberait, et ferait, à mon avis, disparaître un grand nombre d'abus. Entretemps il reste à voir si cet arrangement est possible. Pour cela, il faudrait pouvoir compter sur la coopération bienveillante de toutes les puissances, les mêmes droits étant accordés aux plus petites comme aux plus grandes. Actuellement, les pays d'importance moindre sont envahis par les Compagnies établies dans les grands États, et pourtant ces derniers se montrent très difficiles dans l'octroi de concession aux sociétés érigées dans les contrées plus petites. En acceptant mon projet, ce seraient les grands pays qui perdraient, et les petits qui gagneraient, tandis que la magnanimité des grands États envers les petits ressemble quelque peu à celle du loup pour l'agneau dans la fable.

Cependant, l'on peut viser à une réglementation telle que celle que je propose, surtout si les assureurs sur la vie des petits pays créent un mouvement en ce sens. Les législateurs des différents États sont graduellement arrivés à des conclusions et ont donné des interprétations qui, examinées de plus près, ne supporteraient pas l'épreuve d'un raisonnement logique. Ils ont établi une espèce de critérium officiel de respectabilité et de solvabilité, qui, dans maints cas, paraît choquer le bon sens.

Il est évident que la rédaction d'un rapport de compagnie est en connexion étroite avec d'autres considérations de grande importance et en premier lieu avec les relations des compagnies dans les différents pays avec les gouvernements, ceux-ci découvrant toujours une position fausse. Il a été dit quelque part, — je crois par notre collègue canadien *Macaulay*, — qu'il nous faudrait être très circonspect en réclamant le contrôle de l'État dans les pays où il n'existe pas; c'est là le verdict d'un homme d'expérience, qui n'avait que des éloges pour les fonctionnaires avec lesquels il avait été en rapport. Honnêteté, bonne foi et connaissance du métier donnent aux assurés une plus grande garantie que la surveillance gouvernementale la plus sévère.

Je voudrais encore attirer votre attention sur un autre fait digne de remarque. Il y a eu et il y a dans notre profession quantité de mathématiciens très capables. Ils nous ont appris avec un zèle et une pénétration qu'on ne peut assez louer, comment les lois de la probabilité doivent être appliquées, et cependant il est à remarquer combien peu de mathématiciens, lorsqu'ils doivent exercer un contrôle, osent se fier à leurs propres calculs. La crainte que la possibilité d'une déviation peut mettre une Compagnie en danger est chez eux si générale que beaucoup préféreraient voir en caisse tout le capital assuré avec en plus quelques réserves extraordinaires. Cette crainte s'explique par le simple fait qu'il ne suffit pas d'être un mathématicien capable pour administrer et diriger avec succès une compagnie d'assurance sur la vie.

Il ne m'appartient pas de faire une proposition quelconque au Congrès. Je suis pleinement convaincu que, si le Congrès l'adoptait, chaque pays n'en suivrait pas moins sa voie. Peut-être réside-t-il dans la législation sociale que l'assurance devienne de plus en plus chose réglée par

l'État. Mais, aussi longtemps qu'il n'en est pas ainsi, que l'on se garde de prescrire la façon dont l'industrie des assurances doit être exercée. Dans certains pays, l'on trouve, à côté des institutions particulières, l'État assureur sur la vie. Ceci est peut-être à recommander, si du moins l'État s'abstient d'allouer des subsides. Ceux qui accordent plus de confiance dans la direction d'une institution d'État que dans celle d'entreprises particulières, peuvent y placer la leur.

Je termine avec l'espoir que ce petit exposé fournira l'occasion de soumettre à une enquête impartiale et approfondie cette théorie des concessions gouvernementales, dont dépend tant la rédaction des rapports sur la situation d'un exercice.

DAS ABSCHLIESSEN DER BÜCHER VON GESELLSCHAFTEN, WELCHE VERSICHERUNGEN IN VERSCHIEDENEN LÄNDERN EFFECTUIREN.

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Gestatten Sie mir, mit dem Bekenntnis zu beginnen, dass mir die Zusammenkunft des „Congress of Actuaries" in diesem Lande zur besonderen Genugthuung gereicht. Nicht nur, weil ich dadurch Gelegenheit habe, Amerika zu besuchen, was während meines ganzen Lebens einer meiner Lieblingswünsche gewesen ist, sondern auch, weil ich es für eine Pflicht halte, dass alle die, welche in Europa in früheren Jahren über die amerikanischen Life Assurance Companies in weniger günstigem Sinne geschrieben oder gesprochen haben, ihren Irrtum eingestehen. Die Ursachen dieses minder günstigen Urteils lagen teils im Misstrauen, teils in der Unkenntnis der thatsächlichen Verhältnisse. Ohne weiter darauf einzugehen, möchte ich nur daran erinnern, dass ich noch die Zeit gekannt habe, in der man von dem Holländer, der sich nach Amerika begab, ohne Weiteres annahm, dass er Ursache hätte, sich wegen eines Verbrechens den Gerichten zu entziehen und dass er desshalb ein Land aufsuche, wo es überhaupt keine Gerichte gebe. Selbst jetzt noch gibt es Holländer und, wie ich denke, auch noch andere Europäer, die es als Beweis grosser Unsolidität betrachten, wenn Jemand einzugestehen wagt, dass er Geld in amerikanischen Werten angelegt habe.

Was nun die amerikanischen Lebensversicherungsgesellschaften betrifft, so hat nichts mehr dazu beigetragen, das Misstrauen der Europäer zu beseitigen, als die drei Congresse der Actuaries in Brüssel, London und Paris. Man hat sich hier gegenseitig kennen und wertschätzen lernen, man hat eingesehen, dass die amerikanischen Lebensversicherungen die Geschäfte mit demselben Ernst behandeln, wie die europäischen, dass sie ganz genau über Alles unterrichtet sind, was in Europa über diese Branche geschrieben wird, dass sie, wenn ihre Ansichten von den europäischen abweichen, stets triftige Gründe dafür anzuführen wissen, mit einem Worte, dass sie in keiner Hinsicht hinter den europäischen zurückstehen, sofern es sich um Fachkenntnisse und Geschäftsführung handelt, dass sie diesen aber, was Unternehmungsgeist betrifft, weit überlegen sind.

Ich wünsche nunmehr in erster Linie einen Punkt zur Sprache zu bringen, der oft Veranlassung zum Misstrauen bei den Europäern ge-

geben hat und der, wenn dieses auch verschwunden ist, doch für weite Kreise unverständlich ist. Ich meine die *Veröffentlichung der Jahresberichte* (reports) *der amerikanischen Lebensversicherungsgesellschaften* IN DEN ERSTEN TAGEN DES MONATS JANUAR.

Bei den meisten europäischen Gesellschaften läuft das Versicherungsjahr vom 1. Januar bis 31. December und wenn auch einzelne Gesellschaften davon eine Ausnahme machen, so ändert dies an der principiellen Frage, die wir hier besprechen, gar nichts. Bei den amerikanischen Gesellschaften läuft das Versicherungsjahr meines Wissens jedes Jahr am 31. December ab; manche kleinere europäische Gesellschaften, die auf einen räumlich kleineren Geschäftskreis beschränkt sind, können die Resultate ihres Betriebes verhältnismässig rasch mitteilen, aber in der Regel gehen doch stets ein Paar Monate darüber hin, ehe sie ihren Rechenschaftsbericht in der erforderlichen Form veröffentlichen können. Die Gesellschaften, die in verschiedenen europäischen Staaten arbeiten, halten ihre jährliche Generalversammlung meistens im Juni ab und veröffentlichen dann vor Juli ihren Bericht über das abgelaufene Jahr und, um dies zu ermöglichen, bedarf es der angestrengten Arbeit eines zahlreichen Personals. Ist es nun zu verwundern, wenn es die Direktoren dieser Gesellschaften befremdet, dass die grossen amerikanischen Gesellschaften, deren Arbeitsfeld über die ganze Welt verbreitet ist, bereits am 10. oder 15. Januar die detaillirten Resultate ihres Betriebes mitteilen können? Konnte man es ihnen, da sie ohnedies schon Allem, was aus Amerika kam, misstrauten, verübeln, wenn sie glaubten, dass die amerikanischen Gesellschaften es mit ihren Jahresberichten nicht allzugenau nehmen und dass die veröffentlichten Ziffern wenig Vertrauen verdienten? Es ist möglich, dass dabei auch die Eifersucht eine Rolle gespielt hat, denn man konnte sich des Gedankens nicht erwehren, wie bequem und angenehm es sein müsse, bereits in den ersten Tagen des Januar das abgelaufene Jahr mit seinem Leid' und Freud' auf sich beruhen zu lassen, um sich mit ungeteilter Kraft der Entwickelung des Betriebes in dem neu eingetretenen Jahre widmen zu können.

Wir wissen jetzt, dass unsere amerikanische Kollegen nicht die Männer sind, denen man den Vorwurf machen kann, dass sie es mit etwas, was es auch sein möge, nicht allzu genau nehmen oder in officiellen Berichten unzuverlässige Ziffern veröffentlichen, aber gerade desshalb halte ich es für eine wichtige Frage, die dafür und dagegen sprechenden Gründe auf diesem Congress zu erörtern. Dass nicht alle amerikanischen Kollegen mit der amerikanischen Gewohnheit einverstanden sind, ersehe ich aus einem von *James W. Alexander* vor „the National Convention of Insurance Commissioners at Columbus, Ohio," im September 1902 gehalten und unter dem Titel: „The Ideal Company" veröffentlichten Vortrag. Hier heisst es:

„Meiner Ansicht nach verträgt es sich nicht mit der Genauigkeit, wenn man aus dem Company's Report die grosse Masse neuen Geschäfts ausscheidet, welches gewöhnlich gegen Ende des Jahres abgeschlossen wird, umsoweniger als ein paar Fragen klarlegen würden, wie viel als bezahlt im Hauptbureau gemeldet, und wie viel einkassiert wurde. Meiner Meinung nach wäre es allein richtig, so viel Zeit, sagen wir sechs Monate, zu gewähren, um von allen Theilen der Welt Nachricht zu erhalten, und nach dieser Zeit einfach alle unbezahlten Abschlüsse zu annullieren."

Wenn wir von der Voraussetzung ausgehen, dass das Versicherungsjahr am 31. December zu Ende geht, dann kommt die Frage, die uns

hier beschäftigt, darauf hinaus, ob wir einem Company's Report den Zustand der Gesellschaft, wie sich dieser aus den Büchern des Hauptbureaus am 31. December ergibt, zu Grunde legen oder ob wir mit dem Abschluss dieser Bücher so lange warten müssen, bis wir wissen, dass vor diesem Datum nichts geschehen ist, was eine Veränderung im Report bewirkt hätte, wenn wir davon vorher unterrichtet gewesen wären.

Wir wollen alsbald bemerken, dass man niemals mit absoluter Sicherheit erklären kann, dass nicht hie und da etwas vor dem 31. December vorgekommen sei, wovon man erst nach der Feststellung des Report Kenntnis bekam oder dass nicht kleine Versehen in der Buchführung vorgekommen sind, die, wenn sie nicht vorgekommen wären, manche Ziffern etwas geändert haben würden. Dies sind aber nur unbedeutende Uebelstände praktischer Art, die bei jeder Methode sich einstellen können und die man so gut als möglich zu vermeiden suchen muss. Für uns handelt es sich hier um die Hauptsache oder, wenn man lieber will, um die Theorie. Man wird natürlich der Wahrheit stets um so näher kommen, je länger man mit dem definitiven Abschluss der Bücher wartet, man kann dies aber nicht in infinitum verschieben, denn dann würden die Schwierigkeiten, die jetzt schon an der europäischen Methode haften, noch viel grösser werden. Desshalb wird in der Regel bestimmt, dass der Report vor dem 1. Juli veröffentlicht werden muss und auch Herr *Alexander* denkt, wie wir oben sahen, an sechs Monate nach dem 31. December, also an den 1. Juli.

Wenn man auf dem Hauptbureau nichts mehr, was nach dem 31. December einläuft, auf das andere Jahr bucht, dann wird der Report, der beansprucht, den Zustand so darzustellen, wie er am 31. December thatsächlich war, grosse Abweichungen von der wirklichen Geschäftslage aufweisen. Folgt man dagegen der europäischen Methode, dann wird man die grösst mögliche Genauigkeit erhalten, aber man wird, wie wir oben schon bemerkten, sich nicht mit ungeteilter Kraft der Entwickelung des Betriebes in dem neu eingetretenen Jahre widmen können, vielmehr sich ein volles halbes Jahr mit dem, was im abgelaufenen Jahre vorgekommen ist, plagen müssen. Man wird dadurch ein Reclamemittel verlieren, denn das Interesse für die Resultate eines einzelnen Jahres ist am grössten im Anfang des darauf folgenden Jahres, während man nach dem 1. Juli bereits an die Resultate des neuen Jahres denkt. Dazu kommt noch, dass die Gesetzgebungen mancher europäischen Staaten verschiedene Formen für die Jahresberichte vorschreiben, was natürlich wieder zu einer weiteren Verzögerung führt. Die Frage ist also die, ob man die Genauigkeit den praktischen Bedenken opfern soll oder ob man die minutiöseste Genauigkeit so hoch anschlägt, dass ihr gegenüber Alles in den Hintergrund treten muss?

Ich halte dafür, dass man sich vor allen Dingen davor hüten muss, die äusserste Genauigkeit, welche wir hier meinen, in allzu leichtfertiger Weise preis zu geben. Den Augenblick, in welchem man erklären kann, dass in einem gewissen Jahre die Prämien, die nach den Registern in diesem Jahre empfangen werden *mussten*, auch wirklich empfangen worden *sind*, dass in die berechnete Reserve keine einzige Reserve von Posten aufgenommen ist, die nicht mehr bestanden, und keine fehlt von Posten, die am 31. December wirklich bestanden, dass alle Posten aller Bücher aller Succursalen mit den Büchern auf dem Hauptbureau übereinstimmen, — diesen Augenblick kennt der, welcher sich an die amerikanische Gewohnheit hält, nicht. Nun weiss ich wohl, dass man auch bei dieser Methode einen solchen Augenblick ins Leben rufen kann, wenn

man aber weiss, welche Mühe es kostet, um soweit zu kommen und wenn man dabei bedenkt, dass bei der amerikanischen Methode dazu keine zwingende Notwendigkeit besteht, dann wird es erlaubt sein, zu bezweifeln, ob die amerikanischen Gesellschaften diesen Augenblick wohl jedes Jahr ins Leben rufen. Aber die Folgen dieser Unterlassung können nicht ausbleiben. Die Möglichkeit grosser Fehler und Irrtümer, ja grober Unregelmässigkeiten ist dann nicht ausgeschlossen. Kürzlich berichteten die Fachblätter über grosse Verluste, welche durch einen Generalagenten verursacht worden waren, der sich Jahrelang Gelder der Gesellschaft angeeignet hatte. Ich glaube, dass so etwas nicht hätte vorkommen können, wenn jedes Jahr sein Saldo genau berechnet und auf das folgende Jahr transportiert worden wäre; ich vermute, dass ein Inspector in unregelmässigen Zeiten die Succursalen besucht, Bücher und Kasse genau untersucht und die Saldos der Agenten damit und mit den noch unbezahlten Quittungen vergleicht, — aber selbst dann noch fehlt die nicht hoch genug anzuschlagende Kontrolle, die man erhält, wenn an *einem* bestimmten Datum am Hauptbureau alle Buchungen der Succursalen mit denjenigen des Hauptbureaus verglichen werden.

Man könnte die Bücher an einem früheren Datum, z. B. am 30. September, abschliessen, so dass man, auch wenn man die europäische Methode befolgt, dennoch im Anfang des darauf folgenden Jahres mit dem Jahresbericht fertig wäre, aber dadurch würde man das Buchjahr verlegen, man würde eine ebenso grosse Ungenauigkeit begehen, als die, welche man vermeiden will, denn der Jahresbericht würde dann nicht mehr das Resultat des Kalenderjahrs geben.

Nun ist es nicht zu leugnen, dass die Resultate von beinahe allen Berechnungen, mit Einschluss der Reserveberechnung, nichts anders als grobe Approximativziffern geben, die in der Regel von den wirklichen Resultaten sehr bedeutend abweichen. Desshalb ist es so gefährlich, ein Urteil über die Solvabilität einer Gesellschaft auszusprechen. Wahrscheinlich hat bei der Annahme der amerikanischen Methode diese bekannte Wahrheit wohl eine Rolle gespielt und wird man sich gesagt haben, dass die ihr anhaftende Ungenauigkeit den wahrscheinlichen Fehler, der bei den Berechnungen unvermeidlich ist, nicht nennenswert vergrössern werde. Aber wir haben in diesem Falle mit den Resultaten der praktischen Wirklichkeit zu thun, die wir mit Sicherheit feststellen *können;* unwillkürlich geben wir Ziffern, die unrichtig sind und wir betreten damit einen Weg, der zum Verderben führen kann. Man wird vielleicht einwenden, dass man die hier gerügte Unrichtigkeit dadurch vermeiden kann, dass man constatiert, dass der Jahresbericht aus den Büchern abgeleitet ist, wie diese am Hauptbureau am 31. December lauteten, aber dann constatiert man zugleich, dass das, was man eine Bilanz über das Buchjahr 19.. nennt, keine Bilanz im wahren Sinne des Wortes ist.

Man darf sich die Möglichkeit grosser Abweichungen vor Allem nicht zu gering vorstellen. Durch zufällige Umstände können am Ende eines Jahres Ereignisse eintreten, die auf die Resultate dieses Jahres von grossem Einfluss sind. Es können darin besonders viele Austritte vorkommen, es können besonders viele und grosse Posten abgeschlossen werden, durch unvorhergesehene Umstände kann der Wert der Besitzungen plötzlich steigen oder fallen, es können Zahlungseinstellungen von Personen eintreten, welche Schuldner der Gesellschaft sind u. s. w. Alle diese Ereignisse werden zwar auf die Zahlungsfähigkeit einer länger bestehenden und soliden Gesellschaft keinen Einfluss haben, aber sie

können die Resultate eines Buchjahres recht stark beeinflussen. Indessen können solche Ereignisse auch den Gesellschaften, welche die europäische Methode befolgen, Schwierigkeiten verursachen. Nimmt man z. B. an, dass eine Gesellschaft ihre Effekten zu dem am 31. December notierten Kurs auf die Bilanz bringt und dass im April darauf z. B. eine Geldkrisis eintritt, durch welche die Kurse bedeutend fallen, dann *weiss* die Direction, dass sie die Effecten der Gesellschaft zu hoch auf die Bilanz gebracht hat. Die Sache kommt dann aber vollständig in Ordnung, wenn man den Rückgang als Spezialreserve auf die Bilanz bringt oder, wenn eine Reserve für Geldanlage vorhanden ist, diese um diesen Betrag vermindert.

Nun versteht es sich wohl von selbst, dass dies auch enge mit der Einrichtung der Verwaltung zusammenhängt und wenn wir darüber sprechen wollen, dann stossen wir auf eine neue Frage, die meines Erachtens noch bei Weitem nicht von allen Seiten hinlänglich beleuchtet ist. Hat man die Verwaltung bedeutend dezentralisiert, d. h. hat man für verhältnismässig kleine Rayons selbständige Succursalen errichtet, die von einander unabhängig sind und von vertrauenswürdigen Männern geleitet werden, dann können diese in verhältnismässig kurzer Zeit ihre Bücher zum Abschluss bringen, mit der Reserveberechnung fertig sein und die Bilanz der Succursale zusammenstellen. Werden die Schriftstücke dann sofort dem Hauptbureau übermittelt, dann kann dieses durch Addition der verschiedenen Posten die Bilanz für die ganze Gesellschaft fertig stellen und den Jahresbericht abfassen. Natürlich müsste man dafür sorgen, dass bei jeder Succursale eine gehörige Kontrolle besteht, so dass man sich hinsichtlich der Richtigkeit der Daten und Ziffern, die dem Hauptbureau übermittelt werden, keinem Zweifel hinzugeben braucht. Bei Ländern mit ausgedehntem Grundgebiet, wie Amerika, Russland, Deutschland u. s. w. könnte man Unterabteilungen einrichten, so dass z. B. die Bilanz der amerikanischen Succursale dargestellt werden müsste, indem man die verschiedenen Posten der Bilanzen der verschiedenen Staaten zusammen addiert.

Abgesehen von der Kostspieligkeit einer solchen Verwaltung stösst man alsbald auf diese Schwierigkeit, dass die Gesetzgebungen der verschiedenen Länder hinsichtlich der Form der Jahresberichte und der Art und Weise der Berechnung der Reserve nicht dieselben Anforderungen stellen. Um ein Beispiel zu nennen, nehme man an, dass in einem Lande, in welchem das Hauptbureau liegt, die Reserve mit 3% berechnet werden muss, was muss dann mit der Bilanz der Succursale eines Landes geschehen, in welchem eine Berechnung zu 4% erlaubt ist? Die einzige Auflösung wäre, dass man bei allen Succursalen der Berechnung den niedrigsten Prozentsatz zu Grunde legt, der in einem Lande vorgeschrieben ist. Aber mit diesem Prozentsatz hängt auch wieder die Höhe der Tarife zusammen, so dass man dann auch in den verschiedenen Ländern verschiedene Tarife einführen muss, wodurch die Ziffern der Totalbilanz zu den übrigen Ziffern des Report in ein recht sonderbares Verhältnis zu stehen kommen. Noch schwieriger gestaltet sich die Sache in Ländern, deren Regierungen verlangen, dass die Gesellschaften ihren Betrieb überall nach ihren Vorschriften einrichten, wie dies bereits jetzt seitens des Reichsversicherungsamts in Berlin geschieht.

Aus alledem ergiebt sich, dass die Zusammenstellung der Reports solcher Gesellschaften, welche in vielen Ländern arbeiten, eine aussichtslose Arbeit ist, soferne man in jeder Hinsicht auf Genauigkeit Anspruch machen will und dies gilt ebensowohl für die europäische, wie für die

amerikanische Methode. Man ist dann wohl genötigt, von Hilfsmitteln Gebrauch zu machen, wenn man mit der Wahrscheinlichkeit nicht allzuscharf in Konflikt kommen will. Die Frage, die man zu beantworten hat, ist die: Wie kann man Reports zusammenstellen, welche die Lage der Gesellschaften am 31. December mit genügender Genauigkeit wiedergeben, wenn diese Gesellschaften ihr Arbeitsfeld über verschiedene Länder ausdehnen und wenn man vermeiden will, dass die Arbeitskraft solcher Gesellschaften durch die Zusammenstellung dieser Reports vollständig erschöpft wird?

Man hat zwar behauptet, dass keine Geschäftsbranche sich weniger für eine Beaufsichtigung durch den Staat eigne, als das Lebensversicherungsgeschäft. In mancher Hinsicht ist dies durchaus richtig. Die Regierungsbeamten haben von ihrem Standpunkt aus vollkommen recht, wenn sie Vorschriften geben, durch welche die Reserve so hoch steigt, dass ein Defizit zur Unmöglichkeit wird und wenn sie verlangen, dass diese Reserve in Werten angelegt werde, deren Solidität alle anderen übertrifft. Aber es ist nicht billig, dass sie nicht noch weiter gehen. Wenn auch vorgeschrieben würde, welche Mortalitätstafeln angewendet werden müssen, welcher Höchstbetrag an Provisionen den Zwischenpersonen ausbezahlt, wie hoch das allgemeine Unkostenkonto sein darf, dann würde einiges System in diese Vorschriften kommen, was bis jetzt vollständig fehlt. Versucht man dies, so würde man, meines Erachtens, rasch einsehen, dass es nicht möglich ist, für alle Länder dieselben Vorschriften zu machen. Dieses Unmögliche möglich zu machen, überlassen dann auch die Regierungen den Gesellschaften. Oder ist es nicht sinnlos, zu verlangen, dass bei der Berechnung der Reserve auf die Bruttoprämien überhaupt keine Rücksicht genommen werde, oder sich der Thatsache zu verschliessen, dass in dem einen Land der Rentestandard anders ist, als in dem andern, dass es Geldanlagen gibt, die in dem einen Land solid, im andern nicht solid sind, dass man in dem einen Lande viel geringere Provisionen zu bezahlen und geringere allgemeine Unkosten hat, als in dem andern? Die Regierungsbeamten *können* über dies Alles nicht auf dem Laufenden sein und *sind* es auch nicht. Um nur *ein* Beispiel anzuführen, so habe ich mehr als einmal die Erfahrung gemacht, dass eine Geldanlage, welche in dem einen Lande als das Non plus ultra der Solidität betrachtet wurde, von den Regierungsbeamten eines anderen Landes für nicht zulässig erklärt wurde und dass umgekehrt eine Anlage, welche die Regierungsbeamten des einen Landes als ganz besonders solid betrachteten, von den Directionen der Gesellschaften des andern Landes zurückgewiesen wurde, weil man sie nicht für empfehlenswert hielt.

Mag man wollen oder nicht, schliesslich werden alle Regierungen das System der Freiheit und der Veröffentlichung in vorgeschriebener Form acceptieren müssen. Ist man allgemein zur Ueberzeugung gekommen, dass die Lebensversicherung kein Trust, sondern eine Handelsunternehmung ist, dann wird man auch begreifen lernen, dass die Lebensversicherung, wie jede andere Handelsunternehmung, sich frei entwickeln können muss und dass es nicht möglich ist, nach bestimmten Vorschriften und Regeln Handel zu treiben. Ich habe früher einmal behauptet, dass jede Lebensversicherungsgesellschaft als ein Individuum betrachtet werden muss, das nach seiner eigenen Anlage, seinem Charakter und seiner Umgebung zu behandeln ist. Was für die eine vortrefflich ist, ist für die andere vielleicht ganz verkehrt, und welche Gründe kann man dafür anführen, dass man der Ehrlichkeit, Fähigkeit, der Fach- und Finanzkenntnis von Regierungsbeamten mehr vertrauen soll, als der der ge-

bildeten und geistig entwickelten Privatpersonen? Man wird antworten, dass die Regierungsbeamten kein Interesse an der Sache hätten, aber, vorausgesetzt, dass dem wirklich so ist, dann ist gerade die Abwesenheit dieses Interesses die Ursache, dass unmögliche Forderungen gestellt werden und dass, was doch die Absicht sein muss, die Versicherten nicht nur nicht beschützt, sondern auch in hohem Grade auf Kosten der Actionäre, der Unternehmer und des Personals bevorzugt werden.

Ich führe dies Alles an, weil meines Erachtens die Reports der Gesellschaften mit grösserer Genauigkeit und viel rascher zusammengestellt werden könnten, wenn die Regierungen sich darauf beschränken würden, die Form der Reports vorzuschreiben und das Weitere dem Urteil des Publikums überliessen. Im Grunde genommen haben die Reports ihren Wert grossenteils verloren, wenn die Regierungen Alles regeln wollen, sie dienen dann nur dazu, um die Neugierde hinsichtlich des Umfangs des Betriebs zu befriedigen, hinsichtlich des Uebrigen kann man ruhig sein, denn dafür sorgen ja die Regierungen! Leider beruht dieses Gefühl der Beruhigung manchmal auch auf einer Täuschung, denn — man erlaube diese Bemerkung — auch Regierungsbeamte können manchmal einen Missgriff machen, wie sich in den letzten Jahren bald da bald dort in unzweideutiger Weise gezeigt hat.

Ich weiss nicht, ob ich mich täusche, aber ich habe alle Ursache, anzunehmen, dass die amerikanischen Gesellschaften das oben Gesagte bestätigen. Führen die grösseren Gesellschaften nicht zweierlei Reports, den einen für das grosse Publikum, der der Hauptsache nach alle Einzelheiten des Betriebs angiebt, und einen grösseren, vollständigeren, der alle weiteren Einzelheiten enthält und zwar nicht geheim gehalten wird, aber doch für das grosse Publikum nicht bestimmt ist? Dies ist in der That logisch, aber es stimmt schlecht mit der Anschauung, der in Amerika allerseits gehuldigt wird, dass das grosse Publikum, d. h. das grosse, freie amerikanische Volk der höchste Richter in allen Dingen ist.

In beinahe allen gebildeten Ländern der Welt steht es dem Unternehmer eines Handelsgeschäfts oder dem Fabrikanten frei, seine Waaren in andern Ländern abzusetzen, ohne dass er dafür eine bestimmte offizielle Erlaubnis nötig hat. Ein Fabrikant von Fahrrädern z. B. schickt seine Maschinen in die ganze Welt und Niemand frägt danach, ob das Publikum gute oder schlechte Waare für sein Geld erhält oder ob es zu viel oder zu wenig dafür bezahlt. Dass man die Lebensversicherung einigermassen anderes behandelt, ist begreiflich, denn Bezahlung und Lieferung liegen hier oft so weit auseinander, dass es nichts schaden kann, wenn man hier etwas genauer auf die Finger sieht. Man darf aber nicht übertreiben und dies thut man, wenn man verlangt, dass eine Gesellschaft, welche in einem Lande errichtet ist und hier ihren Sitz hat, sich in geschäftlicher Hinsicht so benehmen soll, als ob sie in einem anderen Lande errichtet worden wäre und in diesem ihren Sitz hätte. Erlaubt es die Regierung eines Landes, dass eine in einem anderen Lande errichtete und in diesem ihren Sitz habende Gesellschaft in ersterem Lande Versicherungen abschliessen darf, dann folgt logisch daraus, dass diese Gesellschaft hier nach ihren eigenen Gesetzen, Statuten und Reglementen arbeiten darf; wollen die Regierungen dies nicht gestatten, dann thun sie viel besser, die Erlaubnis überhaupt zu verweigern, denn sonst zwingen sie die Gesellschaften, Mittel anzuwenden, die nicht im Interesse der Solidität sind.

Denken wir uns eine Gesellschaft, die in verschiedenen Ländern nach den Gesetzen und Regeln, die ihr in jedem Lande vorgeschrieben sind,

arbeitet und welche in jedem Lande die daselbst verlangten Reports fertig stellt, muss nun eine solche Gesellschaft ihre Bilanz in der Weise machen, dass sie die verschiedenen Posten der besonderen Bilanzen zusammenfügt oder muss sie, ohne diese besonderen Bilanzen zu berücksichtigen, eine Generalbilanz machen, die den Gesetzen des Landes, in welchem sie ihren Sitz hat, entspricht? Ich glaube, dass man zwischen den auf Gegenseitigkeit beruhenden und den Aktiengesellschaften einen Unterschied machen muss. Ich begreife nicht recht, welches Interesse eine auf Gegenseitigkeit beruhende Gesellschaft dabei haben kann, wenn sie ihr Arbeitsfeld über ein sehr grosses Gebiet ausdehnt. Hat sie einen solchen Umfang erreicht, dass das Risiko über eine genügende Anzahl Versicherter verteilt ist, dann wird meines Erachtens jede weitere Ausdehnung für sie gleichgiltig sein. Man nimmt zwar an, dass durch eine grössere Ausdehnung die Unkosten procentualiter kleiner werden, aber die Erfahrung bestätigt dies nicht: Bei Aktiengesellschaften liegt die Sache einigermassen anders, weil bei diesen nur ein Teil des Gewinnes für die Versicherten bestimmt ist, während der andere Teil stets unter ungefähr dieselbe Anzahl Personen verteilt wird. Das Bestreben der Regierungen, um den Versicherten so viel Gewinn als nur möglich zu versichern, widerspricht durchaus dem Prinzip einer Aktiengesellschaft, die verpflichtet ist, für die Interessen ihrer Aktionäre in die Schranken zu treten. Die Gewinnverteilung an die Versicherten ist für solche Gesellschaften keine Notwendigkeit, sie ist nur den Gesellschaften auf Gegenseitigkeit gegenüber ein Reklamemittel und wenn sich die Regierungen auch damit einlassen wollen, dann werden sie sich consequenterweise auch mit der Art und Weise befassen müssen, auf welche z. B. ein Fabrikant von Fahrrädern seinen Gewinn verteilt.

Die Ansicht, dass der Regierung des Landes A, in welchem eine Gesellschaft mit dem Sitze im Lande B Versicherungen abschliesst, das Recht zuerkannt werden muss, um die Art und Weise der Geschäftsführung dieser Gesellschaft im Lande C zu kontrolieren, ist nicht haltbar. Es könnte dann geschehen, dass die Gesellschaft von einer Anzahl Regierungen zugleich in demselben Lande kontroliert, kritisiert und kommandiert wird. Es ist möglich, dass die Regierungen wohlwollend genug wären, um sich mit *einem* System zu begnügen, aber ein mehr oder weniger wahrscheinliches Wohlwollen kann keine Rechtsgrundlage sein. Ebensowenig entspricht es dem internationalen Recht, dass eine Regierung einer Gesellschaft aus einem andern Lande unter der Bedingung, dass sie sich den Gesetzen dieses fremden Landes unterwirft, als ob sie eine einheimische Gesellschaft wäre, die Koncession erteilt, wo die Gesetze der beiden Länder nicht übereinstimmen, ist auch dies unthunlich. Schon das bekannte Sprichwort: „Niemand kann zwei Herren dienen," beweist, dass dies auch die allgemeine Meinung ist. Ich glaube, dass es nur *ein* Mittel gibt, durch welches die Regierungen ihren Standpunkt durchaus behaupten können und die Gesellschaften jedes Landes ihre Selbständigkeit nicht preiszugeben brauchen. Dieses Mittel besteht in Folgendem:

Die Regierungen, welche die Geldanlage der einheimischen Gesellschaften beaufsichtigen, müssen diesen das Recht geben, bei ihnen um die Erlaubnis anzufragen, einen Teil ihrer Gelder in Aktien ausländischer Lebensversicherungsgesellschaften anzulegen. Wird diese Erlaubnis gegeben, dann können die Gesellschaften, welche dies verlangen, in andern Ländern Gesellschaften errichten, welche sich in jeder Hinsicht den daselbst bestehenden Vorschriften unterwerfen können und welche, weil

alle oder die überwiegende Anzahl der Aktien in den Händen der Mutteranstalt sind, in allen Dingen, um welche die Regierungen sich nicht kümmern, von dieser Mutteranstalt abhängig sind. Ehe diese Erlaubnis gegeben wird, müsste die Regierung, welche dies angeht, untersuchen können, ob die Interessen derjenigen, welche Geld anlegen, in dem Lande, für welches die Erlaubnis angefragt wird, gehörig geschützt sind. In den verschiedenen Ländern, für welche die Erlaubnis gegeben ist, könnten dann die Reports so gemacht werden, wie es hier vorgeschrieben und gebräuchlich ist, während die Mutteranstalt in dem Report, welchen sie für ihr eigenes Land zusammenstellt, die Gewinn- und Verlustsaldos der andern Bilanzen aufnehmen könnte. Dann könnten die Reports in verhältnismässig kurzer Zeit fertig sein und es brauchte dann die Genauigkeit der Raschheit nicht aufgeopfert zu werden. Man würde dann auch zu einer Aufsicht gelangen, welche von jeder Regierung über die einheimischen Gesellschaften ausgeübt wird und die Aufsicht über Gesellschaften des einen Landes durch die Regierung eines andern würde dann wegfallen, ohne dass die Interessen der Versicherten geschädigt würden. Natürlich würde dann auch die den Gesellschaften gegebene Konzession, um in einem andern Lande, als wo ihr Sitz ist, zu arbeiten, verfallen, was meines Erachtens eine grosse Anzahl von Misbräuchen verhüten würde.

Indessen erhebt sich die Frage, ob es möglich sein würde, eine solche Regelung einzuführen. Man müsste dann auf das wohlwollende Zusammenwirken aller Regierungen rechnen, wobei den kleineren und schwächeren Staaten dieselben Rechte zuerkannt werden müssten, wie den grösseren und mächtigeren. So wie die Dinge jetzt liegen, werden die kleineren Länder von Gesellschaften, deren Sitz in diesen grösseren Ländern ist, förmlich überflutet, aber diese machen bei der Verleihung von Konzessionen an Gesellschaften in kleineren Ländern grosse Schwierigkeiten. Würde mein Vorschlag angenommen, dann würde dies für die grösseren Staaten einen Verlust und für die kleineren einen Gewinn bedeuten. Aber der Edelmut grösserer Länder gegen kleinere gleicht einigermassen demjenigen des Wolfes gegen das Lamm in der Fabel.

Aber dennoch kann man eine Regelung, wie ich sie vorgeschlagen habe, erstreben, besonders wenn die Lebensversicherer der kleinen Länder den Anfang machen würden. Es haben sich allmählig bei den Gesetzgebern der verschiedenen Länder Gewohnheiten und Anschauungen herausgebildet, die, genau genommen, eine gründliche und unparteiische Untersuchung nicht ertragen können. Dadurch ist eine Art offizieller Massstab der Solidität und Solvabilität entstanden, der in manchen Fällen der einfachsten Kritik nicht Stand halten kann.

Man sieht, dass die Zusammenstellung des Reports einer Gesellschaft in innigem Zusammenhang mit andern Momenten von grosser Wichtigkeit steht, in erster Linie mit dem Verhältnis der Gesellschaften aus den verschiedenen Ländern zu den verschiedenen Regierungen und dieses Verhältnis ist in diesem Augenblick nicht so, wie es sein soll. Es wurde einmal behauptet, wenn ich nicht irre, von unserem Kollegen aus Kanada, *Macauley,* dass man mit der Forderung der Staatsaufsicht in Ländern, wo sie noch nicht eingeführt ist, höchst vorsichtig sein müsse, und diese Behauptung wurde von Jemand ausgesprochen, der aus Erfahrung sprechen und sich über die Beamten, mit welchen er in Berührung kam, nur lobend äussern konnte. Ehrlichkeit, Treu und Glauben und Fachkenntnisse geben den Versicherten eine viel grössere Bürgschaft, als die strengste Staatsaufsicht.

Noch *eine* merkwürdige Erscheinung wünsche ich hier hervorzuheben. Es sind in unserer Branche eine Anzahl höchst tüchtiger Mathematiker thätig gewesen und sind es teilweise jetzt noch und sie haben uns mit nicht genug anzuerkennendem Eifer und Genialität gelehrt, wie wir die Regeln der Wahrscheinlichkeit in unserer Branche praktisch anwenden müssen. Es ist nun merkwürdig, wie wenig Mathematiker es gibt, die, sobald sie mit der Aufsicht betraut sind, es wagen, der Richtigkeit ihrer eigenen Berechnungen zu vertrauen. Die Befürchtung, dass die Möglichkeit von Abweichungen eine Gesellschaft in Gefahr bringen könne, ist bei ihnen so allgemein, dass viele es am liebsten sehen würden, wenn jede Gesellschaft ihr ganzes versichertes Kapital in der Kasse baar liegen hätte, womöglich noch mit einigen Extrareserven. Diese Erscheinung erklärt sich einfach aus der Thatsache, dass es nicht genügt, ein tüchtiger Mathematiker zu sein, um eine Lebensversicherungsgesellschaft mit Erfolg zu verwalten und zu leiten.

Es ist nicht meine Aufgabe, dem Kongress irgend welchen Vorschlag zu machen. Ich bin zu sehr davon überzeugt, dass, wenn der Kongress auch einen Antrag annehmen würde, doch in jedem Lande die Dinge so bleiben würden, wie sie sind. Vielleicht liegt es in der Richtung der socialen Gesetzgebung, dass die Lebensversicherung mehr und mehr eine Staatsangelegenheit wird. Aber so lange das nicht in jeder Hinsicht der Fall ist, enthalte man sich, Vorschriften darüber zu geben, wie dieses Fach betrieben werden muss. In manchen Ländern findet man neben den Privatanstalten eine Staatslebensversicherung. Dies ist vielleicht empfehlenswert, wenigstens dann, wenn der Staat sich enthält, Subsidien zu geben. Diejenigen, welche zur Leitung einer solchen Anstalt ein grösseres Vertrauen haben, als zu den Directionen von Privatunternehmungen, können sich dann zu ersteren halten, während die Leiter dieser Staatsanstalten dann Gelegenheit haben, ihr vortrefflichstes Talent leuchten zu lassen.

Ich schliesse mit dem Wunsche, dass diese kleine Arbeit Veranlassung geben möge, die Theorie der Staatskonzessionen, mit der die Zusammenstellung der Reports in so innigem Zusammenhang steht, noch einmal einer gründlichen und unparteiischen Untersuchung zu unterwerfen.

UBER DIE HAUPTBESTIMMUNGEN DER NEUEN SCHWEDISCHEN VERSICHERUNGSGESETZE.

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Geschichtliches.

Die Entwickelung der schwedischen Gesetzgebung über den Versicherungsbetrieb wird wesentlich dadurch characterisirt, dass sie lediglich von den Fachleuten angeregt wurde und unter deren dauernder Mitwirkung erfolgte. Weil nämlich das eigentliche schwedische Versicherungsgeschäft fast ausnahmelos auf einer soliden Basis ruhte, war seitens des Publicums ein Wunsch über dessen gesetzliche Regelung fast nirgends vorhanden, sondern wurde dieselbe von den Fachleuten nur deshalb erstrebt, weil sie ihrem Betriebe das Ansehen unerschütterlicher Solität auch für die Zukunft sichern wollten.

Schon im Anfang der 70er Jahre, wo das schwedische Versicherungswesen noch von keinerlei besonderen gesetzlichen Vorschriften geregelt wurde, bildete der catastrophale Verlauf einiger englischen Lebensversicherungs-Gesellschaften, an denen das schwedische Publicum bedeutende Summen verlor, den Anlass wiederholter Discussionen in dem kurz vorher gegründeten Versicherungs-Verein in Stockholm über die Nothwendigkeit einer besonderen Gesetzgebung für das Versicherungswesen. Der Verein setzte endlich einen Ausschuss für die Behandlung der Frage nieder und konnte nach einiger Zeit bei der Regierung ein unterthäniges Schreiben, von Gesetz-Entwürfen über die Regelung des Betriebes in- und ausländischer Versicherungs-Gesellschaften begleitet, einreichen. Nachdem die Regierung Gutachten verschiedener Behörden und eines Sachverständigen eingefordert hatte, wurden im Jahre 1886 zwei Königliche Verfügungen erlassen, die sich aber, weil allgemeine Gesetze über Actien-Gesellschaften und sonstige öconomische Vereine in Vorbereitung waren, lediglich auf die Forderung einer gewissen Publicität und, was die ausländischen Gesellschaften betrifft, auf die Ansetzung eines verantwortlichen Generalagenten beschränken.

Es stellte sich indessen, besonders durch einige Neugründungen schwächlicher Art, sehr bald heraus, dass diese Gesetze eine solide Entwickelung des Versicherungswesens auf die Dauer nicht sichern konnten, und da allgemeine Gesetze über öconomische Gesellschaften binnen kurzem zu erwarten waren, wurde vom 1895er Reichstag auf Vorschlag eines im Versicherungs-Geschäfte thätigen Abgeordneten bei der Regierung ein unterthäniges Schreiben eingereicht mit dem Ersuchen, dass Seine Majestät die Ausarbeitung eines vollständigen und wo möglich effektiven Versicherungsgesetzes zu bewirken geruhe. Anlässlich desselben beauftragte die Regierung am 7. Juli 1895 ein aus drei Sachverständigen bestehendes Committee mit der Ausarbeitung eines solchen Gesetz-Entwurfes.

Nachdem dieses Committee seinen Bericht nebst Gesetz-Entwürfen am 10. September 1897 eingereicht hatte, forderte die Regierung später-

hin amtliche Gutachten der Provinzialregierungen ein, und durch besondere Kundgebung wurde den Directionen der Versicherungs-Gesellschaften sowie sonstigen Interessirten die Gelegenheit geboten, der Regierung ihre Meinungen über die Frage schriftlich kund zu geben.

Da einige dieser Gutachten eine theilweise Erweiterung des Gesetzes, namentlich betreffs der Lebensversicherung, als wünschenswerth darstellten, und da gleichzeitig die allgemeine Sympathie für eine gemeinschaftliche Regelung der ganzen öconomischen Gesetzgebung der drei skandinavischen Länder in einer unterthänigen Anheimstellung des Versicherungs-Vereins an die Regierung, die weitere Vorarbeit im Einverständniss mit den Regierungen Norwegens und Dänemarks zu planen, zum Ausdruck gekommen war, wurden diesbezügliche Verhandlungen mit diesen Regierungen eröffnet, welche die Niedersetzung eines gemeinsamen Ausschusses von vier Sachverständigen aus jedem Lande für die weitere Auseinandersetzung der Frage herbeiführten.

Dieser Ausschuss, welcher seine Arbeit der Frage einer gesetzlichen Regelung des Lebensversicherungs-Geschäfts ausschliesslich widmete, reichte im December 1900 — jede Delegation bei ihrer eigenen Regierung — fast gleichlautende Entwürfe einer Gesetzgebung über den Lebensversicherungs-Betrieb ein, welche laut der Begründung nur in solchen Punkten von einander abwichen, wo die geltenden allgemeinen gesetzlichen Bestimmungen der drei Länder vorläufig eine vollständige Uebereinstimmung unmöglich gemacht hätten.

Unter Grundlage des allgemeinen Entwurfes von 1897 und des skandinavischen von 1900 wurden sodann im königl. Justiz-Ministerium mit Beihülfe des Herrn Professors Dr. And. Lindstedt, welcher an den Arbeiten der betreffenden Ausschüsse als Mitglied Theil genommen hatte, zwei vollständige Gesetz-Entwürfe ausgearbeitet: „Gesetz über Versicherungs-Gesellschaften“ und „Gesetz über das Recht ausländischer Versicherungs-Anstalten, im Lande Versicherungs-Geschäft zu treiben.“

Die Gesetz-Entwürfe wurden grundsätzlich der Prüfung des Höchsten Gerichts des Königs unterzogen, welcher am 14. Juli 1902 der Regierung sein lediglich formale Bemerkungen enthaltendes Gutachten übergab. Unter Berückstichtigung dieser Bemerkungen wurde dann im Justiz-Ministerium mit fortwährender Beihülfe des Herrn Doctor Lindstedts eine endgültige königliche Proposition ausgearbeitet, welche im diesjährigen Reichstage zur Vorlage gelangte.

Der Reichstag überwies einem besonderen Ausschusse die Prüfung der Gesetzentwürfe, welcher unter allgemeiner Beipflichtung derselben nur in zwei Punkten, über die Feststellung des Sicherheitsfonds in der Lebensversicherung und die Begrenzung des Gültigkeitsgebietes des Gesetzes, eine wesentlich abweichende Veränderung des Entwurfs brachte. Die zwei Abgeordnetenkammern des Reichstags genehmigten am 2. Mai den Vorschlag des Ausschusses, dem der Justiz-Minister seinerseits auch zustimmte. Einige geringfügige Differenzen zwischen den beiden Kammern wurden wenige Tage nachher ausgeglichen, und damit war die vieljährige Arbeit, welche, wie dem obigen zu entnehmen ist, in allen Stufen mit der äussersten Umsicht und dem gründlichsten Sachverständniss behandelt wurde, zu einem glücklichen Ende gebracht.

Die wichtigsten Gesetzartikel.

Privatunternehmungen, welche den Betrieb von Versicherungs-Geschäften zum Gegenstande haben, sollen entweder Actien-Gesellschaf-

ten oder auf Gegenseitigkeit gegründete Anstalten sein und dürfen kein anderes Geschäft treiben. Einige der Gesetzartikel beziehen sich nicht auf gegenseitige Elementar-Versicherungsgesellschaften, welche Eigenthum nur in einem Provinzialbezirke versichern. Auf folgende Anstalten findet das Gesetz keine Anwendung:

a) Anstalten, welche vom Staate eingerichtet sind,

b) Anstalten, deren Geschäft sich lediglich auf die Versicherung gegen Verlust an Schuldbriefen oder sonstigen Werthpapieren beschränkt,

c) Renten- und Kapitalversicherungsanstalten, welche ihren Mitgliedern aufgeschobene Leibrenten oder Kapitalversicherungen gewähren, ohne ihnen einen im Voraus bestimmten Rechtanspruch einzuräumen,

d) Gegenseitige Elementar-Versicherungsgesellschaften, welche Eigenthum auf dem platten Lande versichern, deren Wirksamkeitsgebiet aber einen Gerichtsbezirk nicht überschreitet,

e) Kranken- und Begräbnisskassen oder sonstige Vereine für Selbsthülfe, deren Betrieb nicht als ein wirkliches Versicherungs-Geschäft anzusehen ist.

Die oben unter Items *c*), *d*) und *e*) erwähnten Anstalten sind jedoch verpflichtet, nach behördlich festzustellenden Formularen Details über ihre Wirksamkeit zu veröffentlichen.

Das Recht Versicherungs-Geschäfte zu treiben setzt eine Concession der Regierung voraus. Beide Kategorien von Versicherungs-Gesellschaften müssen, um eine solche Concession zu erwerben, der Regierung den Gesellschaftsvertrag (die Statuten) und, wo der Betrieb Lebensversicherung oder irgend eine andere Art von Versicherung, welche alle Zukunft oder mehr als zehn Jahre umfasst, einschliesst, gewisse technische Geschäftsunterlagen zur Prüfung unterbreiten.

Der Gesellschafts-Vertrag soll den Gegenstand und Sitz der Gesellschaft, die Zusammensetzung und die Bedingungen der Beschlussfähigkeit des Verwaltungsrathes, wie die Revision des geschäftlichen Betriebes geschehen soll, den höchsten von der Gesellschaft auf einem Risico für eigene Rechnung zue behaltenden Betrag und die Grundlagen der Vertheilung des Reingewinnes bestimmen. Ausserdem soll der Gesellschafts-Vertrag einer Actien-Gesellschaft mehrere im Gesetze angegebene Vorschriften über das Actienkapital enthalten; so wird z. B. dessen Minimal-Betrag auf zweierlei Arten geregelt, einerseits auf das Fünfundzwanzigfache des Höchstbetrages für eigene Rechnung auf einem Risico, andererseits auf 100,000 Kronen. Der Gesellschaftsvertrag einer gegenseitigen Versicherungsanstalt soll Vorschrift enthalten, ob und wie, falls ein Garantie-Capital vorhanden ist, die Garanten in der Generalversammlung stimmberechtigt sind, und über Anzahl und Gesammtbetrag der für Inkrafttreten der Gesellschaft nöthigen Versicherungen.

Ist die Lebensversicherung der Gegenstand der Gesellschaft, so muss die obengenannte Vorlage über die technischen Geschäftsunterlagen u. A. folgendes enthalten:

a) Die Grundsätze für Berechnung der Prämien und Prämienreserven.

b) Die Bestimmungen der allgemeinen Versicherungs-Bedingungen über Rückkauf, sowie über Verfall der Police im Falle einer Versäumung der für die Prämienzahlung festgestellten Frist und über Anleihe unter Hinterlegung der Versicherungspolice.

c) Die Grundsätze und Masstäbe, nach denen die Versicherten an

den Ueberschüssen der Gesellschaft theilnehmen und wie dieselben zu verthilen sind.

d) Ob die Gesellschaft die Lebensversicherung auch im Auslande zu treiben beabsichtigt, und gegebenenfalls die einschlägigen Grundsätze für Berechnung der diesbezüglichen Prämien und Bestimmung der Versicherungsbedingungen.

e) Bei jedem anderen Versicherungszweige sind für Versicherung auf alle Zukunft oder mehr als zehn Jahre die Grundsätze für Berechnung der Prämien und Prämienreserven vorzulegen.

Jede Police soll sowohl die allgemeinen Versicherungs-Bedingungen der Gesellschaft als die Besonderen Bedingungen, welche den Versicherungs-Vertrag begrenzen, enthalten.

Die Haftung der Mitglieder bezw. Versicherten einer gegenseitigen Versicherungs-Gesellschaft kann entweder unbegrenzt oder auf einen gewissen Höchstbetrag begrenzt sein. Wenn der Gegenstand einer gegenseitigen Versicherungs-Gesellschaft nicht Elementarversicherung ist, kann in dem Gesellschafts-Vertrage vereinbart werden, dass nur das Vereinsvermögen für alle Verbindlichkeiten der Gesellschaft den Gläubigern haftet. Eine persönliche Haftbarkeit für in Rückversicherung übernommene Versicherungen kann durch besondere Vereinbarung in dem Gesellschaft-Vertrage ausgeschlossen werden. Wo im Falle einer unbegrenzten oder auf einen gewissen Höchstbetrag begrenzten Haftung ein Deficit entsteht, für dessen Ausgleichung der obengenannte Sicherheitsfonds nicht genügt, sind die nöthigen Geldmittel nebst einem Zuschlage von 10% durch Nachschuss von den Mitgliedern unverzüglich zu erheben. Ist im Falle eines Deficits nur das Vermögen der Gesellschaft für die Verbindlichkeiten haftbar, so ist das Deficit in Ermangelung einer einschlägigen Vereinbarung des Gesellschafts-Vertrages durch Kürzung der Versicherungsbeträge zu begleichen. Jedenfalls soll indessen ein etwa vorhandenes Garantie-Kapital in erster Linie für das Deficit haften.

Vor Ende des zweiten Geschäftsjahres vergebene Organisationskosten, sowie Anwerbekosten für Lebensversicherungen bis zu einem Höchstbetrage von 1½% der in dem Jahre gezeichneten, für eigene Rechnung behaltenen und am Jahresende in Kraft gebliebenen Versicherungsbeträge können in die Bilanz als Activum eingestellt werden. Das erstere Item ist mit einer für die Lebensversicherung und die anderen Versicherungszweige verschiedenen Abstufung binnen 10 Jahren zu tilgen, das letztere ist mit wenigstens einem Fünftel des Original-Betrages in jedem folgenden Jahre in Abrechnung zu bringen. So lange irgend ein ähnliches Item unter den Activen der Bilanz gebucht ist, ist eine Gewinnvertheilung an Actionäre, Garanten oder Versicherte von insgesammt mehr als jährlich 5% über das baar eingezahlte Actien- bezw. Garantie-Kapital nicht gestattet.

Versicherungsfonds nennt das Gesetz die Summe zweier Bilanzposten:

1. Die Summe der am Jahresende fälligen bezw. angemeldeten Versicherungs-bezw. Schadenbeträge.

2. Der Gesammtwerth der laufenden Versicherungen der Gesellschaft.

Letztere Summe, die sog. Prämienreserve, definirt das Gesetz als die Differenz zwischen dem Kapitalwerthe der Verbindlichkeiten der Gesellschaft aus den laufenden Versicherungssummen und dem Kapitalwerthe sämmtlicher von den Versicherten noch zu leistenden Nettoprämien. Werden die Grundsätze für die Berechnung der Prämien-

reserve der Gesellschaft in der Weise verändert, dass eine verhältnissmässige Erhöhung der Prämienreserve dadurch bewirkt wird, so gewährt das Gesetz eine Frist von höchstens 15 Jahren, während der die Differenz einem vom Versicherungsamte festzustellenden Plane gemäss zu tilgen ist. Die Gesellschaften können bei Berechnung der Prämienreserve folgende Beträge in Abrechnung bringen.

1. Gegen Hinterlegung der Versicherungspolicen den Versicherten geleistete Anleihen bezw. Vorschüsse.

2. Den verhältnissmässigen Antheil an der Prämienreserve der bei einheimischen Gesellschaften rückgedeckten Beträge.

3. Vorbehaltlich der Genehmigung des Versicherungsamtes, den verhältnissmässigen Antheil an der Prämienreserve der bei ausländischen Gesellschaften rückgedeckten Beträge.

Um diese und sonstige versicherungstechnische Berechnungen zu besoregn, ist jede Lebensversicherungs-Gesellchaft verpflichtet, einen Actuar anzutellen, der den von Seiner Majestät dem Könige zu erlassenden Competenzbedingungen Genüge leistet, und der jedes Jahr einen Bericht über die Berechnung der Prämienreserve sowie über die thatsächliche und die rechnungsmässige Sterblichkeit und den thatsächlichen und den rechnungsmässigen Zinsfuss der Gesellschaft zu erstatten hat.

Hinsichtlich des Versicherungsfonds enthält das Gesetz noch die Vorschrift, dass dessen Geldmittel und Effecten u. A. von dem übrigen Vermögen der Gesellschaft gänzlich abgesondert, aufbewahrt und verwaltet werden sollen und dass die Werthpapiere, welche einer Erhöhung des Versicherungsfonds zufolge in öffentlichen Verwahr zu hinterlegen sind, spätestens sobald die Bilanz von der Generalversammlung geprüft worden ist, zu leisten sind. Die Controle über die Aufbewahrung und Verwaltung des Versicherungsfonds liegt einem von der Provinzialregierung verordneten Bevollmächtigten ob, welcher einen der zwei Schlüssel, die zu den Werthpapieren des Fonds Zutritt gewahren, innehat. An diesen Wertpapieren haben die Versicherten Faustpfandrecht.

Die Geldmittel des Versicherungsfonds dürfen nur in folgender Weise angelegt werden:

a) Staatliche oder vom Staate garantirte Effekten.

b) Effekten der schwedischen Allgemeinen Hypothekenbank.

c) Depositenscheine der schwedischen Reichsbank oder irgend einer anderen von dem Könige concessionirten Bank.

d) Effecten oder Schuldscheine von einer schwedischen Gemeinde mit Genehmigung Seiner Majestät ausgestellt oder garantirt.

e) Hypotheken einer die ersten zwei Drittel des geltenden behördlichen Taxwerthes nicht übersteigenden Grundschuld und, vorbehaltlich der Genehmigung des Versicherungsamtes, Hypothek einer den geltenden behördlichen Taxwerth des eigenen Geschäftshauses der Gesellschaft nicht übersteigenden Grundschuld.

f) Von privaten Eisenbahnverwaltungen, industriellen Unternehmungen oder fremden Staaten ausgefertigte Effekten oder sonstige Werthpapiere, welche rücksichtlich ihrer Art und der effectiven Garantie den oben erwähnten gleichgestellt werden können.

Bei anderen Versicherungsarten, die sich auf alle Zukunft oder auf längere Zeit als zehn Jahre beziehen, ist für die betreffenden Versicherungen der Versicherungsfonds ebenfalls in Werthpapieren obengenannte Art anzulegen und in der früher erwähnten Weise sicherzustellen.

Als Activum gebuchte Anwerbekosten für Lebensversicherungen können von dem zwecks Deckung der Prämienreserven zu hinterlegenden

Betrage in Abrechnung gebracht werden, wenn das Aufsichtsamt der Meinung ist, dass solches ohne Verletzung der Interessen der Versicherten geschehen könne.

Jede Gesellschaft, welche die Lebensversicherung treibt, ist verpflichtet, aus ihrem jährlichen Reingewinne einen Sicherheitsfonds als Reservefonds des Versicherungsfonds anzusammeln. Die Bildung des Sicherungsfonds wird durch die gesetzliche Vorschrift geregelt, dass die Gesellschaft, bis der Sicherheitsfonds 5% des Versicherungsfonds beträgt, vom jährlichen Reingewinne wenigstens die Hälfte dem Sicherheitsfonds zu überweisen hat. Dem Versicherungsamte steht jedoch das Recht zu, wo solches ohne Verletzung der Interessen der Versicherten geschehen kann, eine geringere Ueberweisung an den Sicherheitsfonds zu gestatten. Der obengenannte Höchstbetrag des gesetzlichen Sicheheitsfonds kann indessen durch Hinterlegung und Aufbewahrung in der obengenannten Weise von höchstens der Hälfe des Actien-Kapitals einer Actiengesellschaft oder des ganzen Garantie-Kapitals einer gegenseitigen Gesellschaft mit dem hinterlegtenBetrage ermässigt werden. Gesellschaften, welche ausser Lebensversicherungen noch andere Versicherungen zeichnen, sind verpflichtet, den Sicherheitsfonds in derselben Weise wie den Versicherungsfonds zu hinterlegen. Versicherungsactiengesellschaften, deren Geschäft nicht nur die Lebensversicherung umfasst, sind verpflichtet, vom jährlichen Reingewinne wenigstens 10% einem Reservefonds zu überweisen, bis derselbe wenigstens 10% des Actien-Kapitals beträgt.

Die obengenannten Gesetzartikel äber die Ansammlung des Sicherheitsfonds sind die im Gesetz-Entwurfe von 1897 angeregten und bedeuten mit dem Vorschlage des skandinavischen Ausschusses verglichen eine höchst wesentliche vom Reichstagsausschusse vorgenommene Kürzung. Die Regierungs-Proposition, welche in diesem Punkte den Vorschlag des skandinavischen Ausschusses aufgenommen hatte, enthielt eine Bestimmung über doppelte Abstufung des Sicherheitsfonds oder in anderer Weise zwei Grade, die Vertheilung des Reingewinnes zu beschränken, und zwar:

1. Bis die Gesellschaft einen Sicherheitsfonds von 2½% des Versicherungsfonds + ½% der Versicherungssumme angesammelt hätte, würde von dem Reingewinne jährlich nur höchstens 5% des baar eingezahlten Actien- bezw. Garantie-Kapitals den Actionären bezw. Garanten und Versicherten zwecks Gewinnvertheilung zur Verfügung stehen.

2. Wenn der Sicheheitsfonds die oben genannte Summe erreicht hätte, jedoch ohne das Doppelte zu übersteigen, wäre, vorbehaltlich Ueberweisung an einen etwa vorhandenen gesetzlichen Reservefonds, und nachdem Actionären, Garanten oder Versicherten 5% des baar eingezahlten Actien- bezw. Garantie-Kapitals überwiesen wären, 10% des Restbetrages dem Sicheheitsfonds zu überweisen.

Für die ganze oder theilweise Hinterlegung und Aufbewahrung des Actien- bezw. Garantie-Kapitals in der oben beschriebenen Weise wären die Höchstbeträge der beiden Abstufungen mit einer entsprechenden Summe zu vermindern.

Den Geschäftsbetrieb der Versicherungs-Gesellschaften, besonders die Einhaltung des durch den Gesellschafts-Vertrag und sonstige amtlich geprüfte Vorlagen der Gesellschaft, sowie die Befolgung der allgemeinen gesetzlichen Vorschriften liegt es einem Vrsicherungsamte zu überwachen ob, dessen Mitglieder Verwaltungsräthe, Beamten, Garanten oder Actionäre einer Versicherungs-Gesellschaft nicht sein dürfen. Das Ver-

sicherungsamt soll bei der Regierung die Abänderungen des Gesellschafts-Vertrages oder der versicherungstechnischen Grundlagen der Gesellschaft, welche das Amt für Wahrung der Interessen der Versicherten nöthig erachtet, beantragen.

Die Versicherungs-Gesellschaften sind verpflichtet bei dem Versicherungsamt folgende Vorlagen jährlich einzureichen:

1. Jahresbericht des Verwaltungsrathes, Bilanz, Bericht der Revisions-Commission, Angabe der von der Generalversammlung gefassten Beschlüsse und ausserdem, einem von dem Amte festzustellenden Formulare gemäss,

2. einen von dem Verewaltungsrathe ausgefertigten und unterschriebenen Bericht über die Geschäftsgebarung der Gesellschaft während des Jahres und deren finanzielle Lage am Ende desselben,

und wenn die Gesellschaft Lebensversicherungs-Geschäft betreibt,

3. einen von dem Actuare der Gesellschaft ausgefertigten Bericht über die Berechnung der Prämienreserve für die laufenden Lebensversicherungen,

4. einen von demselben ausgefertigten Vergleich zwischen der rechnungsmässigen und der thatsächlichen Sterblichkeit der Gesellschaft, sowie zwischen dem rechnungsmässigen und dem effectiven Zinsfusse.

Dem Versicherungsamt stehen sämmtliche Bücher und Schriftstücke der Versicherungs-Gesellschaften auf Wunsch zwecks Einsichtsnahme stets zur Verfügung; ebenfalls steht dem Amte das Recht zu, durch einen Vertreter an der jeweiligen Revision einer Versicherungs-Gesellschaft Theil zu nehmen.

Wird eine Gesellschaft, welche die Lebensversicherung treibt, aufgelöst, oder wird über deren Vermögen der Concurs eröffnet, beginnt zur Wahrlung der Interessen der Versicherten eine gesetzlich genau geregelte eigenartige Administration derselben. Das Versicherungsamt, dem die Verwaltung des Vermögens der Gesellschaft in diesem Falle obliegt, übernimmt unverzüglich die Werthpapiere, in denen für die Versicherten ein Faustpfandrecht besteht, wodurch also die Administration sämmtliche Rechte und Verbindlichkeiten der Gesellschaft übernimmt. Wenn der Gesammtbetrag der obengenannten Werthpapiere geringer ist als die Summe des Lebensversicherungsfonds und des Höchstbetrages des Sicherheitsfonds, besteht für die Administration ein Forderungsrecht bei der Gesellschaft für die Differenz. Von den im Laufe der Administration fälligen Versicherungsbeträgen wird nur so viel ausgezahlt, als nach dem Erachten des Veresicherungsamtes ohne Verletzung der Rechte sonstiger Versicherten geschehen kann. Nach sorgfältiger Schätzung der vorhandenen Werthpapiere hat das Versicherungsamt Verhandlungen mit einer einheimischen Gesellschaft zwecks Uebernahme des Versicherungsbestandes zu eröffnen. Sind die offerirten Bedingungen nach Ermessen des Amtes für die Versicherten genügend vortheilhaft, findet die Uebertragung statt, es sei denn dass ein Fünftel sämmtlicher Versicherten binnen vierzehn Tagen nach Publication der Bedingungen in den allgemeinen Zeitungen gegen die Uebertragung Klage erheben. Kann hingegen eine derartige Uebertragung nicht zu Stande gebracht werden, soll das Versicheungsamt, um die Fortsetzung des Betriebes in der Gestalt einer neuen gegenseitigen Versicherungs-Gesellschaft zu bewirken, eine Versammlung der Versicherten einberufen, die sich über die Gründung und den Gesellschafts-Vertrag einer solchen Gesellschaft zu berathen hat. Stellt es sich dann heraus, dass mehr als vier Fünftel

der Anwesenden einem diesbezüglichen Vorschlage sich anschliessen, sind der vorgeschlagene Gesellschafts-Vertrag und sonstige Grundlagen als genehmight zu betrachten und die Concession der Regierung zu beantragen. Kann dagegen eine neue Gesellschaft nicht in dieser Weise zu Stande gebracht weredn, sind die Geldmittel der Administration unter den Versicherten zu vertheilen, es sei denn dass die Anwesenden sich einstimmig zur Fortsetzung der Administration entschliessen.

Will eine Gesellschaft ihren Lebensversicherungsbestand ganz oder theilweise einer anderen übertragen, ist die Erlaubniss des Versicherungsamtes zu beantragen, welche, wenn nicht wenigstens ein Fünftel der Versicherten dagegen Klage erhebt, und wenn das Versicherungsamt meint, die Uebertragung sei im Interesse der Versicherten, erfolgt.

Für die beim Inkrafttreten des Gesetzes bereits bestehenden Gesellschaften, deren Gesellschaft-Vertrag durch königliche Resolution bezw. Genehmigung der Provinzialregierung bereits concessionirt wurde, gelten die Vorschriften des neuen Gesetzes nicht, die Satzungen über die versicherungstechnischen Grundlagen der Gesellschaft über Bildung und Hinterlegung des Versicherungsfonds sowie des Sicherheitsfonds, über die Beschränkung der Dividende an Actionäre bezw. Garanten oder Versicherte, über Liquidation, besondere Administration und freiwillige Uebertragung von Lebensversicherungs-Beständen u. A. jedoch ausgenommen.

Dem Gesetze über das Recht ausländischer Gesellschaften im Reiche Versicherungs-Geschäfte zu treiben liget die Meinung zu Grunde, der Staat solle die gesetzliche Regelung des Versicherungs-Geschäfts lediglich darauf beschränken, eine solide Entwickelung des einheimischen Versicherungs-Wesens wo möglich zu fördern. Die Leistungsfähigkeit ausländischer Versicherungs-Anstalten könne der Staat einer endgültigen Prüfung nicht unterziehen, wolle aber, um jedenfalls den Unterthanen die allerärgsten Enttäuschlungen zu ersparen, von den ausländischen Gesellschaften, welche dessenungeachtet Versicherungs-Geschäft im Lande zu treiben wünschen, eine verhältnissmässig geringfügige Deposition and einige einfache Mittheilungen über ihren Geschäftsbetrieb fordern. Der Grundgedanke ist, der Staat wolle ausländische Versicherungs-Gesellschaften nicht concessioniren, sei aber vorläufig bereit, ihren Betrieb zu tolreiren, da er im Princip das Recht der Unterthanen, mit ausländischen Geschäfts-Unternehmungen in Verbindung zu treten, nicht beschränken wolle.

Ausländische Gesellschaften, welche in Schweden Versicherungs-Betrieb zu eröffnen bezw. fortzusetzen beabsichtigen, müssen um die Erlaubniss des Versicherungsamtes ersuchen. Dabei sind u. A. folgende Schriftstücke einzureichen: die Statuten bezw. Satzungen der Anstalt, die vom Amte verlangten Auskünfte über die versicherungstechnischen Grundlagen der Anstalt, ein von der Schwedischen Reichsbank ausgefertigter Depositenschein über die Hinterlegung, baar or in Werthpapieren, eines Betrages von je 100,000 Kronen, wenn die Gesellschaft Lebens-, Feuer- oder Transportversicherung zu treiben beabsichtigt, und 50,000 Kronen für jede andere Versicherungsbranche. Eine ausländische Anstalt soll ein gesetzlich befähigter Generalagent vertreten, welchem es obliegt, bei dem Versicherungsamte jährlich eien laut von demselben festzustellenden Formularen ausgefertigten Bericht übr die Geschäfts-Entwickelung der Anstalt im Lande, sowie den Bericht ihrer Revisions-Commission einzureichen. Die im Lande arbeitenden ausländischen Versicherungs-Anstalten participiren an den Kosten des Versicherungsamtes

mit höchstens $^1/_5\%$ der jährlichen Prämieneinnahme aus ihrem schwedischen Geschäfte. Das Gesetz bezieht sich nicht auf ausländische Gesellschaften, die im Lande nur im Wege der Rückversicherung arbeiten, und dessen genaue und wichtige Bestimmungen über einheimische Gesellschaften kommen für die im Lande arbeitenden ausländischen Versicherungs-Gesellschaften nicht in Anwendung.

Anregungen weiterer Gesetzgebung.

Die schwierige Frage, wie der Betrieb der „Assessment"-Gesellschaften für Lebensversicherung gesetzlich zu rgeln sei, wurde von den verschiedenen Ausschüssen einer eingehenden Prüfung unterworfen, jedoch ohne dass man an ein endgültiges Resultat gelangte. Verschiedene Vorschläge zur Begrenzung des Gültigkeitsgebietes des Gesetzes in dieser Hinsicht kamen zur Vorlage, wurden aber bei der Behandlung des Gesetzes im Reichstage mit der Begründung abgewiesen, dass der Betrieb jener Vereine sich so wesentlich von demjenigen der eigentlichen Lebensversicherungs-Gesellschaften unterscheide, dass man ganz besondere Gesetze für dieselben nöthig habe. Das Resultat wurde in diesem Punkte deshalb nur ein Schreiben an die Regierung mit dem Ersuchen, dass diese eine weitere Auseinandersetzung der Frage zu bewirken geruhe und einen diesbezüglichen Gesetz-Entwurf wo möglich dem nächsten Reichstage zur Vorlage bringe.

Da die neuen Gesetze nur das öffentliche Versicherungsrecht ordnen und mit Ausnahme der Seeversicherung ein privates Versicherungsrecht überhapt nicht besteht, wurde seitens einzelner Abgeordneten bei der Behandlung der Frage im Reichstage die Anregung gemacht, man solle gelichzeiting ein Gesetz über den Versicherungs-Vertrag durchführen. Die diesbezüglichen Anträge fanden inzwischen keine Aufnahme.

ABSTRACT.

THE PRINCIPAL REGULATIONS OF THE NEW SWEDISH INSURANCE LAW.

By D. F. Lundgren.

On May 2d, of this year, the Swedish Riksdag passed, after some amendments, two bills proposed by the Government, which are the result of some very elaborate preparatory work, commenced as far back as 1895, and which show peculiarities in many respects.

These bills are based on the principle that the State has the right and the duty to protect the interests of the native public only so far as to fix the general rules for the foundation and business of reliable insurance companies, and of supervising the compliance with these rules, so far as the domestic establishments are concerned, by a Board of Inspection. Hence the first bill, which deals with the Domestic Insurance Companies, depends on the principle of license and aims to secure the solid foundation and sound development of such establishments by legal directions and by establishing a most effective State supervision. As to the foreign companies, it is said that the State cannot assume any responsibility, first, because it is impossible to supervise effectively the general management of such establishments, and, second, because all legal measures might be counteracted in the native country of the company. For this reason the second bill, which refers to the right of foreign insurance companies to do business in Sweden, is based upon the principle of publicity and merely aims, by a certain amount of publicity, to furnish the necessary material for an investigation of the conditions to those who, ignoring the domestic establishments licensed and supervised by the State, prefer the foreign companies.

The following are the principal rules of the first bill: Only stock companies or mutual companies licensed by the Government are allowed to do business. If the company is devoted to life insurance, or to accident insurance for a period longer than ten years, the technical basis for the calculation of premiums and the reserve premiums, the rules governing loans and redemptions, and the principle of profit distribution among the insured are also subject to the examination of the State in each single case.

The paid-in capital of a life insurance stock company must amount to at least 100,000 Swedish crowns. The single risk taken by the company is not to exceed 4% of the paid-in capital. The guarantee fund, represented by promissory notes, must not exceed three times the paid-in capital. In case an insurance stock company is not devoted to life insurance exclusively, a reserve fund of at least 10% of the paid-in capital is to be formed from the net profits—that is to say, by using for that purpose at least 10% of the annual net profits until that limit is reached.

The charter of a mutual insurance company must give the number and amount of insurances which must be signed before the incorporation of the company, as well as the amount of the guarantee fund—if any—and the right of the guarantors to take part in the management of the company. The liability of a member of a mutual insurance company can either be unrestricted, or limited to a certain amount by the charter. If a company does not insure against damage done by the elements, it may be stated in the charter that only the company's means are answerable for its liabilities.

The cost of organization of an insurance company must be paid within ten years. Life insurance companies must begin such payment not later than during the sixth year of business, and at least one-fifth of the original amount of such cost of organization must be paid annually. Other insurance companies must commence such payment in the third year of business at the latest, with at least one-eighth of the original amount per annum.

Life insurance companies may enter as assets in their statement of assets and liabilities the cost of soliciting new insurances up to 1½% of the amount of all signed insurances in force at the end of the respective year. This asset is to be decreased by at least one-fifth of its original amount in each following statement. Until these two items (i.e., the cost of organizing the company and of soliciting new insurances) are entirely paid, no higher dividend than 5% of the capital or the guaranteed capital of the company can be paid to either stockholders and guarantors or to the insured.

All insurance companies are bound to enter in their statements as a liability an item called Insurance Fund and divided as follows:

(a) Premium Reserve, i.e., the calculated value of all current insurances.

(b) Some kind of a Suspense Account, showing the sum total of all the amounts of insurance or damage due or claimed, but not yet settled at the end of the year.

The Premium Reserve for life insurance is to be calculated on the basis of the net premiums and is the difference between the capital value of all the liabilities of the company originating from the current insurances, and the capital value of all the net premiums still to be paid by the insured. In case the basis for the calculation of the insurance fund is changed, the new basis requiring a larger premium reserve than the former, the difference may be made up gradually according to a plan devised by the State Board of Insurance, but within not more than fifteen years.

No company is held to put in an insurance fund for the amounts re-insured with domestic companies. The same may be granted, exceptionally, and according to the judgment of the State Board of Insurance, to such amounts as are re-insured with foreign companies.

The insurance fund of life insurance companies can only be invested in the following stocks: Swedish Government bonds, bonds of the General Swedish Real Estate Bank, bonds of Swedish Communities, or bonds guaranteed by Swedish Communities with the permission of the Government, mortgages on real estate not in excess of two-thirds of the official tax, bonds of foreign countries, or such commercial papers as offer the same security as those mentioned above. Mortgages on the own house of the company can be used for the investment of the insurance fund up to its full official tax—with the permission of the State Board of Insurance. From this amount to be deposited there may be deducted the cost of soliciting new insurances,—mentioned above and entered in the annual statement as an asset,—if the State Board of Insurance decides that such deductions are not against the interests of the insured.

The bonds representing the insurance fund must be kept apart from the other assets of the company; they must be safely deposited and are subject to the control of a member of the country government. Apart from the insurance fund, life insurance companies must form a surety fund from the net profits of the business, inasmuch as at least one-half of the annual net profits must be carried over to the surety fund, until the latter amounts to 5% of the insurance fund. In some cases, when the State Board of Insurance decides that it can be done without violating the interests of the insured, a smaller sum may be carried over to the security fund. In case a life insurance company has deposited one-half of its stock capital, or a mutual life insurance company one-half of its guaranteed capital, in the same way as the insurance fund, the limit of the surety fund can be lowered by the amount thus deposited.

The insurance business is subject to the control of the State Board of Insurance, which is competent all over the kingdom. To this State Board of Insurance the insurance companies must submit their annual statements, balance sheets, business reports, reports of the revisory committees, and all the motions carried at the general meeting of the stockholders or guarantors. In addition, the life insurance companies must submit the reports of their actuaries on the calculation of the premium reserve, as well as a comparison made up by these actuaries of the actual mortality (or the actual rate of interest) and the calculating bases of the company. The Government will set forth the requisites of an actuary.

The State Board of Insurance is to supervise the strict adherence to the insurance law as well as to the provisions of the charter, and to report to the Government in case the technical basis of the company seems to be unsatisfactory.

Exhaustive provisions are made as to the liquidation and the merger of life insurance companies, tending to the protection of the rights of the insured as per insurance contract. The entire process of liquidation aims at preserving, as far as possible, the capital of insurance.

The insurance law does not apply to Government establishments, companies insuring against damage done by the elements and limiting their business to one county, nor to such endowment and annuity insurance establishments as do not pay fixed amounts, but only such as are limited by the profits earned; neither does it refer to sick and death benefit associations and similar societies for mutual aid, the business of which cannot be regarded from the same point of view as that of real insurance companies.

The bill concerning the right of foreign insurance companies to do business in Sweden calls for the appointment of a general representative who is responsible for all the business done by the company in Sweden. The company must be licensed by the State Board of Insurance, and for the purpose of obtaining such license the following documents must be submitted to the Board: Power of attorney of the general manager, charter, details about the business to be enacted, evidence that the company carries on insurance in its own country with permission of the legal authorities there, and that this business done by the company did not cause any interference of such authorities during the last three years; the affidavit of the company that it is willing to submit to all provisions of the Swedish law and the Swedish legislation, and the evidence of having deposited at the Swedish Riksbank in cash or bonds the amount of 100,000 Swedish crowns for Life, Fire or Marine Insurance, and 50,000 Swedish crowns for any other branch of insurance. The general representative must deliver to the State Board of Insurance an annual report of the directors and the revisors of the company, as well as a report on the business done by the company in Sweden. The representatives of a foreign insurance company are under no circumstances permitted to contend that their establishments are licensed by the Government, or that the security given by them is sufficient guarantee to the insured; that is to say, the State does not license the foreign companies, but simply permits them to do business in the country and assumes no responsibility whatsoever as to their business.

RÉSUMÉ.

LES AXIOMES DE LA NOUVELLE LOI D'ASSURANCE SUÉDOISE.

PAR D. F. LUNDGREN.

Le 2 Mai 1903 la diète Suédoise a donné son approbation, avec peu de changement, à deux lois d'assurance proposées par le gouvernement, qui forment le

résultat des travaux préparatoires très étendus et commencés en 1895—et qui sans doute présentent quelques particularités très remarquables.

Les lois se basent sur le principe que l'Etat ne peut ni ne doit protéger les intérêts de ses sujets qu'en fixant les axiomes pour la fondation et l'administration de solides établissements d'assurance, et en surveillant par une autorité compétente l'observation de ces axiomes par les instituts domestiques. Conséquemment la première loi se base sur le principe de la concession, et tend à la saine fondation et au développement salutaire de tels instituts en posant des mamixes de la solidité et en créant la surveillance de l'Etat la plus effective possible. Mais quant aux institutions étrangères l'Etat ne peut se charger d'aucune responsabilité parcequ'il lui est impossible d'exercer le contrôle de l'administration centrale—et en outre parceque de telles lois pourraient être paralysées par des mesures de la part du pays natal de la compagnie étrangère. Pour cette raison l'autre loi, traitant les droits des institutions étrangères de faire des affaires en Suède, se base sur le principe de la publicité et n'a pour but que la présentation des matériaux (en conséquence d'une certaine publicité) pour le contrôle volontaire de ceux qui en répudiant les instituts domestiques, autorisés et contrôlés par l'Etat—s'adressent aux compagnies étrangères.

Voilà les ordres principaux de la première loi. Seulement les sociétés anonymes et les associations mutuelles, après avoir obtenu la concession de l'Etat —sont autorisées à faire des affaires d'assurance. A part le contrat social, en cas que la société s'adonne à l'assurance sur la vie, ou à celle contre l'accident pour une période de plus de dix ans, les principes techniques du calcul des primes et des primes réservées, les règles de l'emprunt et du rachat et les maximes de la distribution du profit parmi les assurés sont dans tous les cas sujets à l'examen du gouvernement.

Si les affaires d'assurance sur la vie sont faites par une société anonyme, il faut que le capital payé se monte au moins à la somme de 100,000 Couronnes Suédoises, et le risque de chaque cas couru par la société elle-même ne doit pas excéder 1/25 de ce capital payé. Le fond de garantie d'une société anonyme pour l'assurance sur la vie, composé des billets à ordre, ne doit pas excéder le triple du capital payé. En cas que la société anonyme ne s'adonne pas exclusivement à l'assurance sur la vie, elle doit accumuler au moins 10% du produit net annuel comme un fonds de réserve jusqu' à se qu'il se monte au moins à 10% du capital payé.

Le contrat social d'une société mutuelle doit fixer le nombre et la somme totale des assurances signées avant la constitution définitive de la société, ainsi que le chiffre du capital de garantie et le droit des garants de partager l'administration de la société. La garantie des membres d'une société mutuelle pent être illimitée ou d'une limite restreinte par le contrat social. Si la société ne s'adonne pas à l'assurance contre les éléments, on peut fixer par le contrat social, que seuls les fonds de la société seront la garantie des engagements.

Il faut amortir les frais de la formation de la société d'assurance dans l'espèce de dix années au plus. Il faut que les sociétés d'assurance sur la vie commencent l'amortissement durant la sixième année d'affaires et avec au moins 1/5 de la somme originaire; les autres sociétés d'assurance durant la troisième année d'affaires avec au moins 1/8 de la somme originaire.

Il est compris dans les droits des sociétés d'assurance sur la vie de placer, comme un actif, dans le bilan de clôture annuel les frais de l'engagement des assurances nouvelles jusqu'à 1½ des sommes d'assurance signées et valides à la fin de l'année d'affaires, et il faut déduire sur cet actif au moins 1/5 de la somme originaire dans tout bilan de clôture suivant. Jusqu'à ce que l'amortissement des frais de la formation ainsi que de ceux des engagements nouveaux soit fini, le dividende annuel accordé aux actionnaires, garants, ou assurés, ne doit pas excéder 5% du capital payé ou garanti.

Il est compris dans les devoirs des sociétés d'assurance de placer, comme un passif, dans le bilan de clôture annuel un fonds d'assurance composé.

1. des primes réservées, c'est à dire la valeur supputée de toutes les assurances courantes.

2. de la réserve de dommage, c'est à dire la somme totale des assurances échues ou reclamées mais non encore réglées à la fin de l'année d'affaires.

Il faut supputer les primes réservées par la méthode des primes nettes, et elles sont fixées comme la différence entre la valeur capitale de tous les engagements de la société à la suite des assurances courantes, et la valeur capitale de toutes les primes nettes non encore payées par les assurés. Si les méthodes de supputation du fonds d'assurance sont changées, et si les nouvelles exigent des primes réservées plus grandes que les anciennes la différence (en vertu d'un plan

autorisé par le Bureau d"Assurance) peut être égalisée à peu près, mais dans une période de quinze années au plus.

Pour les sommes ré-assurées avec des sociétés domestiques les sociétés d'assurance ne sont pas obligées de former un fonds d'assurance; et le jugement du Bureau d'Assurance peut étendre cette exception en quelques cas spéciaux aux sommes ré-assurées avec des sociétés étrangères.

Il faut que les fonds des sociétés d'assurance sur la vie ne soient placés que dans les valeurs suivantes: les effets publics Sédois; les effets de la Banque Générale Suédoise du Crédit foncier; les effets des communes Suédoises (ou les effets garantis par des communes Suédoises autorisées par le gouvernement); des hypothèques jusqu'à 2/3 du taux officiel; des effets des Etats étrangèrs et des valeurs industrielles du même credit. L'hypothèque de la propre maison de la société peut être appliquée jusqu'à la valeur pleine et entière—avec la permission du Bureau d'Assurance—pour le fond d'assurance.

L'actif des frais d'engagement mentionnés ci-dessus peut être déduit de cette somme à déposer, s'il est admis par le Bureau d'Assurance que cela se fait sans lésion des intérêts des assurés.

Les valeurs du fonds de l'assurance sur la vie qu'il faut séparer d'avec les autres moyens de la société et déposer, sont le sujet du contrôle d'un réprésentant du gouvernement cantonal.

A part le fonds d'assurance les sociétés d'assurance sur la vie doivent former un fonds spécial de réserve en y contribuant au moins de la moitié des produits nets des affaires jusqu'à ce que fonds représente 5% du fonds d'assurance; mais cette contribution peut être réduite avec la permission du Bureau d'Assurance s'il se fait sans préjudice des intérêts des assurés.

En cas qu'une société anonyme d'assurance sur la vie n'ait pas déposé plus que la moitié de son capital—ou une société mutuelle d'assurance sur la vie n'ait pas déposé plus que la totalité de son capital garanti, ainsi que le fonds d'assurance, la limite légale du fonds spécial de réserve peut être réduite par la somme ainsi déposée.

Les affaires d'assurance sont le sujet du contrôle du Bureau d'Assurance, installé pour tout le royaume. Les sociétés d'assurance sont obligées de présenter tous les ans au Bureau d'Assurance le compte final annuel et le bilan de clôture, le rapport général des affaires, le rapport des réviseurs, et les arrêtés de l'assemblée générale. Outre cela, si la société s'adonne à l'assurance sur la vie, il faut présenter le rapport de l'actuaire sur le calcul des primes réservées pour l'assurance sur la vie, aussi bien que le tableau comparatif de la mortalité actuelle (ou du taux d'intérêt effectif), et des axiomes du compte de la société, composé par l'actuaire. C'est au gouvernement de fixer les conditions de la compétence des actuaires.

C'est le devoir du Bureau d'Assurance de surveiller l'observation des ordres légaux et des règles du contrat social, et d'aviser le gouvernement aussitôt qu'il apparaîtra que les principes techniques de la société ne sont plus satisfaisants.

La liquidation aussi bien que la fusion des sociétés d'assurance sur la vie sont réglées complétement par la loi qui tend à protéger les droits des assurés fondés sur le contrat social en cas de liquidation. Toute la procédure de la liquidation a pour but le maintien du capital d'assurance.

La loi ne se rapporte pas aux établissements de l'Etat, aux associations d'assurance contre les éléments bornées par un seul arrondissement, aux établissements qui ne fixent pas dans le contrat d'assurance la rente viagère ou le capital assuré, mais qui n'assurent que les produits des affaires—aux caisses bénéficiaires et leur assurance contre la maladie ou des frais funéraires, qu'on ne peut pas placer sur la même ligne d'efficacité que les grands instituts d'assurance.

En réglant le droit des sociétés étrangères de faire des affaires en Suède, la loi demande la nomination d'un gérant général, responsable de toutes les affaires de la société faites en Suède. La société a besoin de l'autorsiation du Bureau d'Assurance de l'Etat et il faut présenter les documents suivants pour recevoir cette autorisation: le mandat du gérant général; le contrat social; la détermination des affaires auxquelles la société va s'adonner; le certificat de l'admission légale de la société aux affaires d'assurance du pays et de son intégrité durant le trois années qui viennent de s'écouler; la déclaration de la société qu'elle soumet à la législation et aux lois Suédoises; la preuve du dépot d'une caution de 100,000 Couronnes Suédoises pour l'exercice de l'assurance sur la vie, et de 50,000 Couronnes Suédoises pour l'exercice d'une autre branche d'assurance. D'autre part il faut que le gérant général présente annuellement au Bureau d'Assurance le rapport de la direction et des réviseurs, aussi bien que le rapport spécial des affaires faites dans le royaume. Il est interdit absolûment et *sub poena*

aux réprésentants d'une société d'assurance étrangère de prétendre à la concession gouvernementale de sa société en Suède, ou d'en critiquer la licence en prétendant que la caution mentionnée ci-dessus forme une garantie suffisante aux assurés. Bref, l'Etat ne confère pas la concession aux sociétés étrangères—mais il les tolère en ne se chargeant d'aucune responsabilité quant à leurs affaires.

VALUATION, IN ACTIONS FOR DAMAGES FOR NEGLIGENCE, OF HUMAN LIFE, DESTROYED OR IMPAIRED.

By Miles M. Dawson, A.I.A.,

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Compensation for the destruction of human life was in its earlier form a satisfaction for homicide and was exacted either in addition to punishment or revenge or more frequently as a compromise or substitute. The lord of the manor thus recouped himself for the loss of a fighting man or the clan or the gens did the same thing. The immediate family, and especially the children, were not often considered, and, indeed, the compensation usually varied more with the power of the claimant to extort than with the equities involved. It was a mode of expiation to avoid vengeance.

Punishment for the crime of murder became the rule after civilized customs got sway, and financial expiation has ever since been deemed impossible.

Since the primitive conception of compensation was not purely one of indemnity, but a mixed one, involving indemnity, expiation and avoidance of vengeance, the introduction of the law of responsibility for negligence, resulting in the death or injury of a fellow-mortal, found the peculiar condition that, while it was clear that a man might recover for injury to himself, there was apparently no interest upon which, following precedents, a claim because of his death could be founded.

The first modification of this theory was that the estate was held to be possessed of any right of action of which the decedent was seized at the time of his death—especially if the decedent had begun suit. Under this it was held in some states and countries—though not in all—that administrators or executors could maintain an action for the decedent's sufferings, expenses, etc., prior to his death, the same having been caused by the negligence of another. Under such judge-made laws, it has been reported that claims have been denied when the decedent was suddenly killed, without pain or expense, excepting for the amount of the funeral expenses.

In most states and countries, a different principle has been established by statute, viz.: that a right of action is possessed by dependents (or next of kin) for death by negligence. In practically all states and countries a right of action for injury, caused by the negligence of another, is recognised.

In some countries, including most of the countries of Europe, the right to compensation on the part of an employé for injuries received while at work, and the right of his dependents to compensation for his accidental death while at work, have been established by statute, without regard to negligence. In these laws, a method of fixing the compensation is laid down. There are serious actuarial problems in connection with insurance schemes to cover the liability under these laws, and sometimes actuarial assistance is required in order to value the benefits when in the form of pensions, if a compromise for a lump sum is desired and is permitted. But since none of these deals directly with valuing the

life itself or the impairment of it, they will not be considered in this paper.

In all states and countries the rights of persons who are not employés—and in the United States and some other countries, of employés also—to claim for damages in case of injury caused by the negligence of another, and of their dependents (or next of kin) for damages for their deaths from a like cause, are in every case for compensation equal the full value of the loss or damage—excepting to the extent that limitations of the amount recoverable have been put into the statutes. This gives an opportunity for the employment of actuarial computations to determine the present value of the damage or loss, and, indeed, if properly made, such calculations ought to be invaluable in fixing the damages.

Yet the services of actuaries have not been sought widely and their employment has sometimes been viewed very unfavourably by the courts. From inquiries which I have set on foot, it appears that actuarial testimony is frequently used in such cases only in Canada, Australia and New Zealand. In some states of the United States the courts have ruled favourably concerning it, and in others, unfavourably. In the absence of such testimony, the judge or jury, as the case may be, is left to fix the loss or damage, either wholly without evidence as to probable duration of human life or only with information as to the "expectation of life"—in the United States usually as per the Northampton Table and, as like as not, with the "years purchase" of an annuity at 5% or 6% (i.e., the present value of an annuity of $1.00 per annum) taken as the "expectation." The Appellate Division of the Supreme Court of New York—not the court of highest resort—has even held as to the use of such a table as follows: "The language of the statute, however, precludes an attempt to measure this loss (a loss by death) upon a mathematical calculation, and we do not think that evidence as to the cost of an annuity should be admitted, as it is calculated to distract the attention of the jury from the real duty that is imposed upon them by the statute, and that is, to fix what they deem a fair and just compensation for the pecuniary injuries resulting from the decedent's death." Which, of course, leaves the jury without anything to guide them in determining what is "fair and just compensation."

Notwithstanding which opinion, the following premises may be advanced with confidence: Actuarial science furnishes means to compute the pecuniary value of a life destroyed, the age, net earnings and general condition of health at the time of death being given. And also means for estimating the pecuniary damage to earning power by reason of injuries. And these values cannot be approximated with reasonable accuracy, without recourse to actuarial principles.

For it is precisely the province of actuarial science to deal with problems of the duration of human life and of the present values of incomes, depending upon its duration.

It need not be said, perhaps, to this congress of actuaries that testimony merely as to the net value of a life annuity, such as was referred to by the court, is one of the crudest forms of actuarial assistance and may be included among the makeshifts employed, consciously or unconsciously, in order to avoid making thorough and appropriate use of actuaries' services. Among such makeshifts the following may be enumerated:

1. The expectation of life.
2. The term of probable life—"vie probable."
3. The net value of a life annuity by a given table and rate of interest.
4. The single premium at which a life annuity could have been bought from a solvent and reliable company.

When the expectation or probable life is employed, the usual course

has been to compute the present value of an annuity certain for this term. In other words it is used as a means of approximating the value of a life annuity. The old theory, long ago exploded, that a life annuity may be thus valued, continually reappears in some such fashion.

The application of all these depends upon the amount of the net income of the decedent over what, for the want of a better word, may be called his "keep," having first been proven. The age and the condition of the decedent as to health are also proven, usually; so that, if an actuary were given a fair opportunity to give expert testimony, with the reasons for his conclusions, he ought to be able to aid the jury materially to perform "the real duty that is imposed upon them by the statute, and that is, to fix what they deem a fair and just compensation for the pecuniary injuries resulting from the decedent's death." Sometimes a good deal of the family history is brought out, also, and evidence as to insurability is occasionally offered, though as to the former the New York court in the case already referred to has decided: "We think the testimony of the age of the father of the deceased was immaterial. The jury should not have been allowed to consider that because the father had lived to be 72 years of age his son would live so long. We think that the admission of that evidence was allowing an element to be considered by the jury which is, even in cases of this character, too speculative." The actuary, in attempting to cast up the value of the life, would find all such evidence of assistance, of course, and would not be misled by such puerile reasoning as the judges attribute to jurymen.

As to the thing to be valued, three cases may be distinguished:

1st. When the law provides that the full value of the life destroyed is to be recovered.

2nd. When the law provides that only the full value of the life destroyed, to the persons claiming, is to be recovered.

3rd. When the law prescribes what the interests of the persons claiming shall be.

The usual form where the common law prevails, is the first of these unless the statutes clearly provide otherwise; where the civil law prevails, the usual form is the second; while in Germany, Russia and perhaps in some other countries the third form is laid down by statute. Each has an appearance of reasonableness. The first rests on the proposition that the value of a man's surplus income belongs to somebody, as, for instance, his dependents, the next of kin or even the community, if carried to its logical extreme, in case no immediate dependents or heirs to his estate appear; and that the person who causes the death by negligence should under no circumstances be permitted to escape compensating the loss. The second rests upon the proposition that a particular claimant can properly recover nothing more than the value of his own interest in the life. The third rests upon the proposition that the interests of different persons in the life should be determinable definitely by reference to the statutes and the circumstances of the case. In some states and countries there is found a sad confusion as to the first and second of these, the rulings being one way at one time and the other way at other times.

In order to deal with them correctly, each of these cases must be considered separately.

1st. When the law provides that the full value of the life destroyed (i.e., to others than the decedent) is to be recovered.

Assuming, first, that the life was adult and earning an income, evidence will be offered—and should be offered before the actuary is called upon—as to the age, sex, condition of health, occupation, habits, family history, income and personal expenditure of the decedent. Evidence may be offered, also, especially if the decedent was young, as to promotions and prospects; and in rare instances as to regularity of employment.

The actuary will not be directly interested in the "net surplus income," because his calculations will be such as may be varied readily to express the value of a larger or smaller net surplus income. But he may require to know something about the rate of increase of income from promotions, so as to give a value for an increasing income as well as for an income of a constant amount.

A suitable mortality table may be selected by the actuary, when fully advised as to the age, sex, condition of health, occupation and family history of the decedent. This will require skill and care, and, of course, such selection should be backed by sufficient reasons therefor. This course presents no insuperable obstacles even now, and will be easier to follow as special mortality tables are developed. The census tables of Great Britain and other countries, friendly society tables, the recent special tables of the American Society of Actuaries and many others are now available. Impairment of health or the influence of bad habits may, perhaps, be allowed for by "rating up" to a higher age.

The actuary is likely, under existing rules of court which are sometimes in these matters incredibly stupid, to find himself limited to some obsolete table such as the Northampton, prescribed by such rules; and it has happened that he was prevented from using other well-known tables by the objection that he could have no personal knowledge of their construction and correctness and, when tables of his own construction were offered, then that he did not himself know every person whose life was dealt with and personally know of each death or survival. Failing such "knowledge" the most pertinent evidence possible may be excluded as "mere hearsay evidence."

If permitted to proceed with his work, the next questions before the actuary are: What loss of time and consequently of earnings because of illness and accident should be allowed for and what year of age should be assumed to close the income earning period of the life?

Each of these inquiries calls for a conclusion which must depend very largely upon the occupation and the condition as to health and habits, as well as the sex, of course, of the decedent. The matter of health and habits, if deemed poorer than the average, can hardly be dealt with usually by any means other than "rating up" in age. Fortunately sickness tables (including disablements by accidents as sicknesses) are available which give the experience under the heads of sex and occupation. Much is wanting in this regard, but the actuary can arrive at results which closely approximate what is "fair and just" if he is given the opportunity.

In computing the value of the deductions to be made for probable loss of time by disability, account should be taken, first, of the age at which income-earning will probably have ceased, and, second, that the loss per day or week by disabling illness is not the "net surplus income" nor even the total income, but the total income plus the usual "keep" and also plus the expenses of treatment and nursing.

The age at which the income-earning period should be assumed to close varies in different occupations and in different countries. The actuary may be assisted by testimony taken in the case; if not, his conclusions should be supported by statistics.

Let k = the "net surplus income" for a year and c = the total income, plus "keep" and expense of treatment and nursing, and the usual symbols be used for the other values. We have, then, for the formula for the present value of a life when the "net surplus income" is assumed to be constant during health until age $x + n$, at which age the income-earning period is assumed in any event to close, the following:

$$k\,\bar{a}_{x\,\overline{n}|} - \frac{c\,(K_x - K_{x+n})}{52\,D_x}.$$

If it be required to value a life on the basis of an increasing income, because of prospects of promotion, the problem becomes somewhat more involved. In such case let k = the present "net surplus income," c = total income and assume that the increase in each is by an arithmetical progression at the rate of h added to the gross income at the end of each year, starting from age x. The formula then becomes:

$$k\,(v\,\bar{a})_{x\,\overline{n}|} - \frac{[c\,(K_x - K_{x+n}) + h\,\Sigma_{s=1}^{s=n}\,(K_{x+s} - K_{x+n})]}{52\,D_x}.$$

If there should be occasion for assuming that the income decreases after age $x+s$, becoming finally extinguished at age $x+n$, suitable variations of the last formula will give the required deduction.

2nd. When the sum to be recovered is to be the value of the interest of the claimant in the life of the decedent or when, the whole value being recoverable, it is to be divided among the claimants in proportion to the value of the benefits which each might have expected from the decedent, had he survived.

Case (a). The claimant being in receipt of an income or support from the decedent at the time of his death and entitled to such income or support during the joint duration of the entire life of the claimant and of the productive life of the decedent.

Let x = age of decedent at time of his death.
y = age of claimant on the same day.
k' = annual income afforded the claimant by the decedent.
n = the number of years until the limit of the period of productive life of (x).

The value is plainly the value of an annuity of k' for the joint status, less the present value of loss of income to (y) by reason of disablements of (x).

Let s_{x+r} = the probability of sickness (in weeks) during the year of life following $x + r$.

The probability that (x) will survive to age $x + r$ and then experience this sickness, (y) also surviving, $= {}_{r+\frac{1}{2}}p_{x\,y}\ s_{x+r}$.

The present value of this probability $= v^{r+\frac{1}{2}}\ {}_{r+\frac{1}{2}}p_{x\,y}\ s_{x+r}$

$$= \frac{v^{r+\frac{1}{2}}\ l_{x+r+\frac{1}{2}:\,y+r+\frac{1}{2}}\ s_{x+r}}{l_{x\,y}} = \frac{D_{x+r+\frac{1}{2}:\,y+r+\frac{1}{2}}\ s_{x+r}}{D_{x\,y}}.$$ Let

$$\Sigma\ D_{x+\frac{1}{2}:\,y+\frac{1}{2}}\ s_x = K_x^{x\,y}.$$

We then have for the value of the interest the expression:

$$k'\left(\bar{a}_{x\,y\,\overline{n}|} - \frac{K_x^{x\,y} - K_{x+n}^{x\,y}}{52\,D_{x\,y}}\right).$$

This formula is applicable to the case of a claimant who is made a widow by the decedent's death or, the action being for the value of "services" usually, of a man who is thus made a widower.

When the claimant and decedent are very nearly of the same age, it would probably be sufficiently accurate to deduct $\frac{K_x - K_{x+n}}{104\,D_x}$, which value, of course, is more easily ascertained instead of $\frac{K_x^{x\,y} - K_{x+n}^{x\,y}}{52\,D_{x\,y}}$.

As to the deduction, it may be observed that the support of a wife does not stop at once upon the disablement of her husband; and when the disablement continues, she may yet receive support from invested funds owned by her husband. On the other hand, she might be charged with his support, treatment and nursing. Each case must be separately considered, therefore.

Case (b). The claimant not being in receipt of income or support from the decedent at the time of his death, but being entitled to receive such income and support after a fixed period, had the decedent survived —as, when a fiance.

Let r = time the beginning of income or support was to be deferred beyond the day of decedent's death.

The value of the interest becomes:

$$k' \left({}_{r|}\bar{a}_{x\,y\,\overline{n-r|}} - \frac{K^{x\,y}_{x+r} - K^{x\,y}_{x+n}}{52\,D_{x\,y}} \right).$$

Case (c). The claimant being in receipt of income or support from the decedent and entitled to such income or support during the joint duration of the productive life of the decedent and the life of the claimant, limited in any case to t years; as, for instance, in the case of a child entitled to support until he attain his majority.

When $n =$ or $< t$, the formula given for the solution of case (a) will apply. When $n < t$, the following formula gives the value:

$$k' \left(\bar{a}_{x\,y\,\overline{t|}} - \frac{K^{x\,y}_{x} - K^{x\,y}_{x+t}}{52\,D_{x\,y}} \right).$$

or, in other words, the same with the substitution of t for n.

Case (d). The claimant not being in receipt of income or support from the decedent, but expectant of such income upon the death of (z), should (x) survive (z), to continue thereafter during the joint duration of the productive lifetime of (x) and the entire lifetime of (y). The value is:

$$k' \left\{ \bar{a}_{x\,y\,\overline{n|}} - \bar{a}_{x\,y\,z\,\overline{n|}} - \left(\frac{K^{x\,y}_{x} - K^{x\,y}_{x+n}}{52\,D_{x\,y}} - \frac{K^{x\,y\,z}_{x} - K^{x\,y\,z}_{x+n}}{52\,D_{x\,y\,z}} \right) \right.$$

Case (e). The claimant's interest being a right to support in old age or in event of earlier disablement. Let t = period to elapse before (y) will be incapacitated by age. Then, disregarding the probability that before n years, (x) and (y) may both be disabled, the value becomes:

$$k' \left({}_{t|n-t}\bar{a}_{x\,y} + \frac{K^{x\,y}_{y} - K^{x\,y}_{x+t}}{52\,D_{x\,y}} \right).$$

The probability of concurrent disablement may be disregarded. Usually t is a considerable term of years; because, unless (x) and (y) are both unusually liable to disability, the main chance of concurrence of disablement is in (y) being already disabled by age, so that the disablement of (x) makes concurrence certain.

Case (f). The claimant's interest being merely a presumptive title to any estate which the decedent might have accumulated out of his earnings, had he survived. Let k = the net sum proven to be saved by the decedent each year out of his income and prudently invested. Let

c = his total income. We have, as an expression for the value of the interest:

$$k\ \bar{a}_{x\,\overline{n}|} - (c - k)_n \mid \bar{a}_x - c\ \frac{K_x - K_{x+n}}{52\,D_x}.$$

Other forms of interest might easily be imagined; but the foregoing includes all that would arise usually in practice. But it must be premised, in this connection, that very often income interests, vested or expectant, and interests in the residue estate are found in the same claimants.

3rd. When the law prescribes what the interests of the persons claiming may be; as when the law requires the person who has been guilty of negligence to support the widow during her widowhood, dependent parents during dependency and children during their minority. The only actuarial problem is to find a present value for these interests, when it is proposed to commute them into a lump sum.

Case (a). Support of widow during her widowhood. The present value, when k' = the annual amount to be contributed to her support and x = age, employing the symbols used by Dr. Thomas Bond Sprague in J. I. A., is given by the following formula:

$$k' \int_0^\infty v^n{}_n p_{y+n}\,(1 - m_{y+n}) = \bar{a}_y - (m\,\bar{a})_y.$$

This formula, however, could only be employed with safety or equity in two cases, viz.: When a court orders the commutation without its asking by either party or when the party adjudged guilty of negligence petitions for it; if the widow petitions for it, there would be a strong presumption that she purposed to marry again. And, on the other hand, the formula might be unfair, when the party adjudged guilty of negligence petitions, if figures based on some average marriage experience were used, and if the widow were for any reason less eligible for marriage than other women. The Russians rule, from this standpoint, that the person who destroys a woman's beauty must support her until she finds a husband—a case with which we shall deal later.

Case (b). Support of a child during minority. Let r = number of years until majority. The value is $k'\ \bar{a}_{y\,\overline{r}|}$.

Case (c). The support of a parent already dependent during dependency. The value is $k'\ \bar{a}_y$.

Case (d). Provision for the support of a parent when the same shall become dependent because of old age or prior disability. The value is

$$k' \left({}_t|\,\bar{a}_y + \frac{K_y - K_{y+t}}{52\,D_y} \right).$$

Usually in employing this formula, K had best be taken as the commutation of a value of sickness of more than a year's duration.

It is worthy of notice that under a fair construction of a statute which provides that the whole value of a life is recoverable, the life of a young child or even of a child yet unborn has a value which should be compensated. The net surplus income cannot be proven, to be sure; but that there would be surplus income, were the child to attain maturity in good health of mind and body, may be accepted as certain, and all the rest, viz., probabilities of survival, of good health and of income, are matters of average. Foetal mortality has been dealt with by Dr. Karl Pearson in Bio-Metrika, and, in short, there is no element in such a

computation with which an actuary, by means of existing statistics, cannot do something decidedly better than to guess.

Even under a statute, limiting the claimant to his actual interest in the life, the interest of a parent in the life of a child, though yet unborn, may be computed from average assumptions.

In all the foregoing, nothing is said concerning compensation for grief, for nervous shock to the claimant nor even for expenses of treatment and of burial. These or some of them may call for compensation; but in one case the exact amount expended is ascertainable and in others it cannot be calculated, except that if the effects of grief or nervous shock are plain, and especially if they are permanent, a case of impairment or disability as a secondary effect of the negligence may be established if such be permitted.

We may next turn our attention to disablements because of the negligence of another. Such disablements may be total or partial, permanent or temporary; and there may also be the case of diminished prospect for life without actual disablement.

1st. Diminished prospect of life, without other disablement. Injuries frequently are held to have impaired the prospect for long life, and while this does not often occur without accompanying disablement, it may well be considered separately as a foundation for what follows:

Let k = income, x = age in fact and $x + t$ = age corresponding to degree of impairment and n' = the period of productive life from age $x + t$. Then the formula for the value of the damages becomes:

$$k\ (\bar{a}_{x\,\overline{n}|} - \bar{a}_{x+t\,\overline{n'}|}$$

It might be considered that k' = the net value of the life over the "keep" of (x), should be valued; but a man's life is worth to him the value of its entire income, from a financial standpoint purely.

3rd. Total permanent disablement. As we have seen, this involves more than the loss of the total earnings; it also involves increased cost of "keep" because of treatment and nursing. Let c = the total annual earnings prior to the injury, plus the increased expenses, k = the actual income prior to the injury. Let n = years to the limit of productive life.

Case (a). It being considered that the claimant's prospect for long life is not impaired, and that there will be no additional expense because of the injuries, after n years, over the usual extra expenses after the productive period is past. The formula is:

$$c\left(\bar{a}_{x\,\overline{n}|} - \frac{K_x - K_{x+n}}{52\ D_x}\right).$$

The deduction is because a total permanent disablement precludes other disablements.

Case (b). It being considered that the prospect for long life is not impaired, but that b extra expense per annum will continue after n years. The formula is:

$$c\left(\bar{a}_{x\,\overline{n}|} - \frac{K_x - K_{x+n}}{52\ D_x}\right) + b\ {}_{n|}\bar{a}_x.$$

Case (c). It being considered that the prospect for long life is so impaired that (x) has now the prospect of an average man at age $x + t$ and that no extra expense beyond n' years—the term of productive life for age $x + t$—is involved. The formula is:

$$k\,(\bar{a}_{x\,\overline{n}|} - \bar{a}_{x+t\,\overline{n'}|}) + c\left(\bar{a}_{x+t\,\overline{n'}|} - \frac{K_{x+t} - K_{x+t+n'}}{52\,D_{x+t}}\right).$$

The claimant has lost, first, his entire income for the period of productive life lost by impairment, and, second, as a man aged $x + t$ is exposed to the annual loss of c limited to n years, less the offset because of freedom from liability to further disablements.

Case (d). Same as last, but with the extra expense continuing after n' years; the formula is:

$$k\,(\bar{a}_{x\,\overline{n}|} - \bar{a}_{x+t\,\overline{n'}|}) + c\left(\bar{a}_{x+t\,\overline{n'}|} - \frac{K_{x+t} - K_{x+t+n'}}{52\,D_{x+t}}\right) + b_{\,n'\,|}\,\bar{a}_{x+t}.$$

3rd. Partial permanent disablement, neither increasing nor improving.

Case (a). Corresponding to Case (a) under permanent total disablement. Let c' = annual impairment of earnings. The formula is:

$$c'\left(\bar{a}_{x\,\overline{n}|} - \frac{K_x - K_{x+n}}{52\,D_x}\right).$$

The claimant is by his partial permanent disablement not prevented from becoming totally disabled, but his damage if he becomes totally disabled becomes $(c - c')$ per year instead of c, because c' of the damage is compensated.

Case (b). The same as Case (a) excepting that it is held that the disablement has both impaired the prospect of life and also increased the probabilities of total disablement, so that $x + t$ with a productive period of n' correctly represents the effective age. The formula becomes:

$$k'\,(\bar{a}_{x\,\overline{n}|} - \bar{a}_{x+t\,\overline{n'}|}) + c\left(\bar{a}_{x+t\,\overline{n'}|} - \frac{K_{x+t} - K_{x+t+n'}}{52\,D_{x+t}}\right).$$

Case (c). The same as Case (b) excepting that it is held that the prospect of life is at age x, but the prospect of total disablement at age $x + t$. The formula becomes:

$$c'\,\bar{a}_{x\,\overline{n}|} + (c - c')\left({}_{n'|n-n'}\bar{a}_x - \frac{K_x - K_{x+n}}{52\,D_x} + \frac{K_{x+t} - K_{x+t+n'}}{52\,D_{x+t}}\right).$$

The reasoning is that, as the prospect for life is not impaired, x is entitled to a temporary life annuity of c' for n years increased to c after n' years; and with the addition of the increased value of the probability of an increase of disability to total, because of the impairment in that regard.

4th. Partial permanent disablement, increasing or improving. Let h = annual increase or decrease.

Case (a). Corresponding to Case (a) under 2nd classification, but with h increase or decrease each year. The formula becomes:

$$c'\,(v\,\bar{a})_{x\,\overline{n}|} - \frac{[c\,(K_x - K_{x+n}) \pm h\,\Sigma_{s=1}^{s=n}\,(K_{x+s} - K_{x+n})]}{52\,D_x}$$

The deduction is because the variation is diminishing (for an increase) or enhancing (for a decrease) the further loss to (x) if permanent disablement overtakes him.

Case (b). Corresponding to Case (b) under 3rd classification. The formula is:

$$k\,(\bar{a}_{x\,\overline{n}|} - \bar{a}_{x+t\,\overline{n'}|}) + c'\,(v\,\bar{a})_{x+t\,\overline{n'}|} - \frac{[c\,(K_{x+t} - K_{x+t+n'}) \pm h\,\Sigma_{s=1}^{s=n'}(K_{x+t+s} - K_{x+t+n'})]}{52\,D_{x+t}}.$$

Case (c). Corresponding to Case (c), under 3rd classification. The formula is:

$$c'\,(v\,\bar{a})_{x\,\overline{n'}|} + c_{n'|n-n'}\,\bar{a}_x - \frac{[c'\,(K_x - K_{x+n}) \pm h\,\Sigma_{s=1}^{s=n'}\,(K_{x+s} - K_{x+n})]}{52\,D_x} + \frac{[c'\,(K_{x+t} - K_{x+t+n'}) \pm h\,\Sigma_{s=1}^{s=n'}\,(K_{n+t+s} - K_{x+t+n})]}{52\,D_{x+t}}.$$

5th. Total temporary disablement.

Case (a). Life not impaired. Let term of disablement be fixed at r years. The formula is:

$$c\,\bar{a}_{x\,\overline{r}|}.$$

Case (b). Life, aged x, rendered equal to life aged $x + t$. The formula is:

$$c\,(\bar{a}_{x\,\overline{r}|} + \bar{a}_{x\,\overline{n}|} - \bar{a}_{x+t\,\overline{n'}|}).$$

6th. Partial temporary disablement.

Case (a). Life not impaired. Degree of disablement constant for r years and then wholly disappearing. The formula is:

$$c'\,\bar{a}_{x\,\overline{r}|}.$$

Case (b). Same excepting that degree of impairment improves by h each year. The formula is:

$$c'\,(v\bar{a})_{x\,\overline{r}|}.$$

Case (c). Same as Case (a) except that life is impaired. Formula:

$$c\,(\bar{a}_{x\,\overline{n}|} - \bar{a}_{x+t\,\overline{n'}|}) + c'\,\bar{a}_{x+t\,\overline{r}|}.$$

Case (d). Same as Case (b) except that life is impaired. Formula:

$$c\,(\bar{a}_{a\,\overline{n}|} - \bar{a}_{x+t\,\overline{n'}|}) + c'\,(v\,\bar{a})_{x+t\,\overline{r}|}.$$

7th. Disability rendering one less eligible for marriage, only. Let c' = amount of annual income or support which one loses in this manner.

Case (a). Valuation of actual damage. Let degree of diminished eligibility be represented by advancing the age from x to $x + t$. Then we have the formula:

$$c'\,\{(m\,\bar{a})_x - (m\,\bar{a})_{x+t}\}.$$

Case (b). Valuation under the Russian rule that support must be given from age x until marriage actually takes place. The formula is:

$$c'\,[\bar{a}_x - (m\,\bar{a})_{x+t}].$$

There could be many refinements of these considerations, calling for altered formulas; and the formulas set down will often require to be modified to suit particular cases.

Existing Insurance Policies.

The courts of Great Britain, followed in few instances elsewhere, have held that existing insurances upon the decedent's life may be applied to reduce the sum to be paid by the party guilty of causing his death by negligence. The rule does not deduct the whole amount of such life insurance, but merely the value of the acceleration of its payment by the early death, or the present value of the premiums which would have been paid in the future upon such insurance. Mr. Richard Teece, F.I.A., F.F.A., read a very interesting paper on this subject before the Insurance Institute of New South Wales not long ago. The subject is not strictly germane to the purpose of this paper, and members of the Congress who are interested are referred to Mr. Teece's paper. The rule of law seems to be such as should become obsolete, since it gives to the person guilty of negligence an advantage because of the prudence of the decedent or of the claimant or both.

The services of actuaries it is plain from the foregoing, would be very useful in aiding courts and juries to reach fair and just conclusions as to awards in actions of this nature or in determining such awards under arbitration. It may truthfully be objected that such calculations may miss some of the elements—and usually will; but it cannot be fairly held that because one cannot embrace all the elements in his calculation, he should not compute at all, but should resort to guessing. On the other hand, the result of such a computation is enormously a safer point from which to allow for the remaining unascertained elements than was the initial point with all the elements unknown. Such computations, if employed under reasonable rules of evidence, cannot fail to enable courts to form a clearer and better defined conception of the damage really suffered.

DIE BESTIMMUNG DES WERTHES DES MENSCHLICHEN LEBENS UND DER MINDERWERTHIGKEIT DES MENSCHLICHEN LEBENS IN KLAGEN AUF SCHADENERSATZ FÜR FAHRLÄSSIGKEIT.

Von Miles M. Dawson, A. I. A.

Entschädigung für die Zerstörung des menschlichen Lebens war in seiner früheren Form ein Ersatz für Todtschlag, und wurde auferlegt entweder neben der Strafe oder Rache, oder, was öfter vorkam, als ein Compromiss oder Substitut. Der Landesherr entschädigte sich so für den Verlust des Fechters, oder dasselbe geschah von Seiten des Stammes oder des Geschlechtes. Die unmittelbare Familie und besonders die Kinder wurden nicht oft berücksichtigt, und in Wirklichkeit richtete sich die Vergütung gewöhnlich mehr nach der Fähigkeit, das Verlangte zu erpressen, als nach dem, was billig war.

Bestrafung für das Verbrechen des Mordes wurde zur Regel, nachdem die Gewohnheiten civilisirter Lebensweise zur Geltung kamen und Geld-Sühne ist seitdem für unmöglich gehalten worden.

Da die primitive Auffassung der Vergütung nicht auf blosse Entschädigung hinauslief, sondern gemischt war in dem Sinne, dass Geld-Entschädigung, Sühne und Verhütung von Rache involvirt waren, so stiess die Einführung des Gesetzes der Verantwortlichkeit für Fahrlässigkeit, welche Tod oder Verletzung für einen Mitmenschen zur Folge hatte, auf den eigenthümlichen Zustand, dass es zwar klar war, dass ein Mensch für erlittene Verletzungen Entschädigung erhalten konnte, dass aber scheinbar kein Interesse bestand, auf welches, nach Präcedenzfällen, ein Anspruch in Folge seines Todes gegründet werden konnte.

Die erste Modification bestand in der Theorie, dass dem Nachlass dasselbe Recht zur Klage zustehe, welches der Verstorbene bei seinem Tode besass — besonders, wenn der Verstorbene einen Prozess bereits angestrengt hatte. Hierbei wurde in einigen Staaten und Ländern — wenn auch nicht in allen — angenommen, dass Nachlassverwalter und Testamentsvollstrecker auf Entschädigung für die dem Tode des Verstorbenen voraus gegangenen Leiden und Auslagen etc. klagen konnten, in allen Fällen, wo diese durch Fahrlässigkeit eines andern verursacht worden waren.

Man berichtet, dass unter solchem, durch Richterspruch entstandenem Gesetz in Fällen, wo der Verstorbene plötzlich getödtet wurde ohne Schmerz und Auslagen, aller Anspruch auf Entschädigung verweigert wurde ausser für den Betrag der Begräbnisskosten.

In den meisten Staaten und Ländern ist durch das Gesetz ein anderes Princip festgesetzt worden, nämlich, dass für Tod durch Fahrlässigkeit den Hinterlassenen (oder nächsten Verwandten) das Recht auf Klage für Schadenersatz zusteht.

Das Recht zur Klage auf Schadenersatz bei Verletzung durch Fahrlässigkeit eines andern wird im Wesentlichen in allen Staaten und Ländern anerkannt.

In einigen Ländern, die meisten Länder von Europa eingeschlossen, ist das Anrecht auf Entschädigung eines Angestellten für Verletzungen, welche er während der Arbeit erlitten hat, und das Anrecht auf Entschädigung derer, welche von ihm abhängig waren, bei Tod durch Unfall während der Beschäftigung durch das Gesetz festgestellt. In den Gesetzes-Paragraphen ist die Methode zur Bestimmung der Entschädigung niedergelegt.

Ernste versicherungs-technische Probleme sind mit Versicherungs-Plänen verbunden, welche die Deckung der Verbindlichkeit nach diesem Gesetze zum Zwecke haben, und manchmal ist versicherungs-technische Hilfe nöthig, um den Werth der Bonifikation festzustellen, beispielsweise in der Form von Pensionen, wenn Compromiss für eine Abfindungs-Summe gewünscht und zugelassen wird.

Da aber keiner dieser Pläne mit der Abschätzung des Werthes des Lebens oder der Minderwerthigkeit desselben zu thun hat, so wird sich diese Abhandlung damit nicht befassen.

In allen Staaten und Ländern haben Individuen, welche nicht Angestellte sind, — und in den Vereinigten Staaten und einigen andern Ländern auch Angestellte, — Anspruch auf Entschädigung im Falle von Verletzung durch Fahrlässigkeit eines andern für den vollen Werth des Schadens, und im Falle des Todes aus derselben Ursache haben diejenigen, welche von dem Verstorbenen abhängig waren (oder deren nächste Verwandte) Anspruch auf gleiche Entschädigung, wofern nicht Beschränkungen des zu erhebenden Betrages durch das Gesetz vorgesehen sind.

Dieses bietet Gelegenheit zur Verwendung von versicherungs-technischen Berechnungen, um den gegenwärtigen Werth des Schadens oder Verlustes festzustellen, und in der That sollten solche Berechnungen, wenn richtig vorgenommen, bei Feststellung des Schadens von grossem Werthe sein.

Dennoch ist der Rath der Aktuare nicht besonders gesucht, und ihre Dienste sind manchmal von den Gerichten nicht sehr günstig aufgenommen worden.

Aus Nachforschungen, welche von mir angestellt wurden, geht hervor, dass versicherungs-technische Zeugen-Aussagen in solchen Fällen häufig nur in Canada, Australien und Neuseeland benutzt werden. In einigen Staaten der Vereinigten Staaten haben die Gerichte günstig, und in andern ungünstig darüber entschieden.

In Ermanglung solcher Aussagen ist es dem Richter oder unter Umständen der Jury überlassen, den Verlust oder Schaden festzustellen, entweder ganz ohne Beweismaterial bezüglich der wahrscheinlichen Lebensdauer, oder nur mit Angabe über die erwartungsmässige Lebensdauer, — in den Vereinigten Staaten gewöhnlich nach der „Northampton Table" oder, was sehr wahrscheinlich ist, auf Grund der Einzahlung für eine Rente bei 5 oder 6% (d. h. des gegenwärtigen Werthes einer Rente von $1.— jährlich) nach der erwartungsmässigen Lebensdauer.

Die Appellations-Abtheilung des Obergerichtes (Supreme Court) des Staates New-York — welches nicht der Gerichtshof der höchsten Instanz ist — hat bezüglich der Benutzung einer solchen Tafel wie folgt entschieden:

Der Wortlaut des Gesetzes schliesst aber den Versuch, diesen Verlust (Verlust durch Tod) durch eine mathematische Berechnung zu messen, aus, und wir glauben nicht, dass das Beweismaterial über die Kosten einer Rente zugelassen werden sollte, da dies dazu angethan ist,

die Aufmerksamkeit der Jury von der ihr durch das Gesetz wörtlich auferlegten Pflicht abzulenken, namentlich bei Festsetzung einer billigen und gerechten Vergütung für aus dem Tode des Versicherten sich ergebende pekuniäre Schäden, wodurch sie natürlich ohne irgend welchen Anhalt zur Bestimmung dessen, was als eine billige und gerechte Vergütung gelten kann, gelassen wird.

Ungeachtet dieses Gutachtens können die folgenden Prämissen mit Vertrauen angeführt werden.

Die Versicherungs-Technik liefert die Mittel zur Berechnung des Geldwerthes eines zerstörten Lebens, wenn das Alter, das Netto-Einkommen und der allgemeine Gesundheits-Zustand zur Zeit des Todes gegeben sind. Sie liefert auch die Mittel zur Schätzung des pekuniären Schadens, welcher der Verdienst-Fähigkeit durch Verletzungen zugefügt wird. Und Annäherung an diese Werthe mit einiger Genauigkeit ist nicht möglich ohne Zuflucht zu versicherungs-technischen Grundsätzen. Denn es liegt gewiss in dem Bereiche der Versicherungs-Technik, sich mit Problemen über die Dauer des menschlichen Lebens und den gegenwärtigen Werth von Einkommen, welche von seiner Dauer abhängig sind, zu beschäftigen.

Es braucht vielleicht diesem Kongress von Aktuaren nicht gesagt zu werden, dass einfache Aussagen über den Werth einer Leibrente, wie sie vor Gericht zur Sprache gekommen sind, versicherungs-technische Hilfsmittel in einer ihrer gröbsten Formen abgeben und zu den Aushilfsmitteln gerechnet werden können, wodurch man wissentlich oder unwissentlich eine gründliche und geeignete Benützung der Dienste der Aktuare vermeidet.

Unter solchen Aushilfsmitteln kann man nennen:

1. Die Fernere Mittlere Lebensdauer.
2. Die Wahrscheinliche Lebensdauer, „vie probable."
3. Der Netto-Werth einer Leibrente, wenn Tafel und Zinsen gegeben sind.
4. Die einmalige Prämie, zu welcher eine Leibrente in einer solventen und zuverlässigen Gesellschaft hätte erstanden werden können.

Wenn die fernere mittlere Lebensdauer oder die wahrscheinliche Lebensdauer in Anwendung kommt, so ist der gewöhnliche Weg die Berechnung einer Zeitrente für diesen Termin. Mit andern Worten, es ist ein Mittel zur angenäherten Bestimmung des Werthes einer Leibrente.

Die alte Theorie, welche schon seit langer Zeit explodirt ist, dass man so den Werth einer Leibrente bestimmen kann, erscheint immer wieder von Neuem in der einen oder andern Art.

Die Anwendung aller dieser Methoden ist abhängig von vorheriger Beweisführung über den Betrag des Netto-Einkommens über das hinaus, was in Ermanglung eines besseren Ausdrucks mit „Nötiger Unterhalt" bezeichnet werden kann.

Ueber das Alter und den Gesundheitszustand des Verstorbenen werden gewöhnlich auch Beweise beigebracht, so dass der Aktuar im Stande sein sollte, wenn ihm eine günstige Gelegenheit zur Abgabe von fachkundigen Zeugenaussagen gegeben würde, mit Angabe der Gründe für seine Schlüsse, die Jury wesentlich zu unterstützen in der Erfüllung der ihr auferlegten Pflicht, nämlich festzustellen, was von ihr als eine billige und gerechte Vergütung für pekuniäre Schädigung in Folge des Todes des Verstorbenen angesehen wird.

Manchmal wird auch ein ziemlicher Teil der Familien-Geschichte eruirt, und Beweismaterial bezüglich der Versicherbarkeit wird gelegent-

beigebracht werden über Fortkommen und Aussichten, und in seltenen Fällen über Regelmässigkeit in der Beschäftigung.

Der Aktuar wird an dem Netto-Ueberschuss-Einkommen nicht direkt interessiert sein, da die Rechnungen leicht so abgeändert werden können, dass sie den Wert eines kleineren oder grösseren Ueberschuss-Einkommens darstellen. Aber es mag für ihn nötig sein, etwas über den Grad der Steigerung des Einkommens in Folge von Beförderungen zu wissen, damit er sowohl den Wert eines steigenden wie eines Einkommens von gleichbleibendem Betrage angeben kann.

Eine passende Mortalitäts-Tafel kann dann von dem Aktuar gewählt werden, wenn er vollständig über das Alter, Geschlecht, den Gesundheitszustand und die Familiengeschichte des Verstorbenen unterrichtet ist. Dies erfordert Geschick und Vorsicht, und deshalb sollten natürlich genügende Gründe hinter solcher Wahl stehen. Dieses Verfahren bietet selbst jetzt keine unüberwindlichen Schwierigkeiten und wird leichter, sobald specielle Sterblichkeits-Tafeln aufgestellt sind. Die Censustabellen von Grossbritannien und anderer Länder, die Tafeln der „Friendly Societies," die neuerdings von der Amerikanischen Gesellschaft von Aktuaren aufgestellten Special-Tafeln, und viele andere stehen schon jetzt zur Verfügung.

Verschlechterte Gesundheit und der Einfluss schlechter Gewohnheiten können vielleicht durch Zuweisung eines höheren Alters in Betracht gezogen werden.

Es ist wahrscheinlich, dass der Aktuar bei den bestehenden Regeln des Gerichtes, welches in diesen Sachen manchmal unglaublich stupide verfährt, sich auf die eine oder andere Tafel beschränkt findet, wie die „Northampton Table," welche von solchen Regeln vorgeschrieben ist; und es ist vorgekommen, dass er von der Benutzung anderer wohlbekannter Tafeln durch den Einwand abgehalten wurde, dass er von deren Construction und Korrektheit keine persönlichen Kenntnisse haben könne, und ferner, wenn von ihm selbst construirte Tafeln angeboten wurden, dass er selbst nicht jede Person, deren Leben behandelt wurde, kenne, noch persönlich von jedem Todesfall oder Ueberlebensfall wissen könne.

In Erwägung solcher „Kenntnisse" wird das zutreffende Beweismaterial, welches beigebracht werden kann, als einfaches Hörensagen ausgeschlossen.

Wenn es ihm gestattet ist, in seiner Arbeit fortzufahren, so sind für den Aktuar die nächsten Fragen folgende:

Welcher Verlust an Zeit und dadurch an Verdienst in Folge von Krankheit und Unfall sollte zugestanden werden, und bei welchem Alter sollte die verdiensterzeugende Periode des Lebens als abgeschlossen angenommen werden?

Jede dieser Fragen fordert einen Schluss, welcher zum grossen Teile von der Beschäftigung, dem Gesundheitszustande, den Gewohnheiten und natürlich auch von dem Geschlecht des Verstorbenen abhängig sein muss.

Die Frage bezüglich der Gesundheit und Gewohnheiten, wenn dieselben als unter dem Durchschnitt angenommen werden, kann gewöhnlich kaum in einer anderen Weise als durch Zuweisung eines höheren Alters behandelt werden.

Glücklicherweise stehen Krankheits-Tafeln (welche Arbeits-Unfähigkeit durch Unfall als Krankheit einschliessen) zur Verfügung, wodurch die Erfahrungen unter den Rubriken Geschlecht und Beschäftigung wieder gegeben werden.

Es fehlt noch an vielem in dieser Beziehung, aber der Aktuar kann,

lich angeboten, obwohl, was das erstere angeht, das Gericht in New York in dem bereits berührten Falle wie folgt entschieden hat: „Wir denken, dass die Zeugenaussagen bezüglich des Alters des Vaters des Verstorbenen unwesentlich war. Es hätte der Jury nicht zu erwägen gestellt werden sollen, dass, weil der Vater bis zu seinem 72. Jahre gelebt hatte, sein Sohn nun auch so lange leben würde. Wir glauben, dass durch die Zulassung solchen Beweismateriales der Jury die Erwägung eines Elementes gestattet würde, welches selbst in Fällen dieser Art zu speculativer Natur ist."

Bei dem Versuche, den Werth des Lebens zu berechnen, würde der Aktuar natürlich alles solche Beweismaterial von Nutzen finden, und würde sich von solchen kindlichen Betrachtungen, wie sie die Richter den Juryleuten zuschreiben, nicht irreleiten lassen.

Bezüglich des zu bestimmenden Wertes können drei Fälle unterschieden werden, und zwar:

1. Wo das Gesetz vorsieht, dass für den vollen Wert des zerstörten Lebens Ersatz zu leisten ist, und zwar an andere Personen.
2. Wo das Gesetz vorsieht, dass Ersatz für den vollen Wert des zerstörten Lebens nur an die Ansprucherhebenden zu leisten ist.
3. Wo das Gesetz vorschreibt, was das Interesse der Ansprucherhebenden sein soll.

Wo das Gewohnheitsrecht nicht gilt, ist die erstere die gebräuchlichere Form, der Gesetzesparagraph müsste denn ausdrücklich anderes bestimmen; wo das Civilrecht gilt, ist die zweite die gebräuchliche Form, während in Deutschland, Russland und vielleicht in anderen Ländern die dritte Form in den Gesetzen niedergelegt ist. Jede dieser Formen hat den Anschein von Billigkeit. Die erstere stützt sich auf den Satz, dass der Wert des Ueberschuss-Einkommens eines Menschen Jemandem gehören müsse, wie beispielsweise denen, welche von ihm abhängen, seinen nächsten Verwandten, oder selbst der Gemeinde, wenn der Satz zum logischen Ende geführt wird, im Falle wo keine unmittelbaren Abhängigen oder Erben erscheinen; und ferner dass das Individuum, welches den Tod durch Fahrlässigkeit verursacht, unter keinen Umständen ohne Ersatzleistung für den Verlust davonkommen darf.

Die zweite Form beruht auf dem Satz, dass der Ansprucherhebende rechtlicherweise nicht mehr erhalten kann, als sein Interesse an dem Leben beträgt.

Die dritte Form beruht auf dem Satz, dass das Interesse der verschiedenen Personen sich definitiv auf Grund des Gesetzes und der Umstände im einzelnen Falle feststellen lässt.

In einigen Staaten und Ländern findet man eine traurige Verwirrung bezüglich der ersten und zweiten dieser Formen, denn die Entscheidungen erfolgen heute nach dieser, morgen nach jener Richtung.

Um mit den Fällen korrekt zu verfahren, muss ein jeder für sich betrachtet werden.

1. Wo das Gesetz vorsieht, dass für den vollen Wert des zerstörten Lebens Entschädigung zu leisten ist.

Nimmt man zunächst an, dass das betreffende Leben dasjenige eines Erwachsenen war und ein Einkommen hatte, so wird Beweismaterial beigebracht, — und sollte beigebracht werden, ehe der Aktuar herbeigerufen wird, — zur Feststellung des Alters, Geschlechts, Gesundheitszustandes, der Beschäftigung, Gewohnheiten, Familiengeschichte, des Einkommens und der persönlichen Ausgaben des Verstorbenen.

Auch mag, zumal wenn der Verstorbene jung war, Beweismaterial

wenn ihm dazu die Gelegenheit gegeben wird, zu Resultaten gelangen, welche dem, was „billig und gerecht" ist, näher kommen.

Bei der Berechnung des Wertes der Abzüge für den wahrscheinlichen Verlust an Zeit durch Arbeitsunfähigkeit sollte berücksichtigt werden, erstens das Alter, bei welchem wahrscheinlich der Verdienst aufhört, und zweitens, dass der Verlust per Tag oder Woche durch Krankheit, die arbeitsunfähig macht, weder das Netto-Ueberschuss-Einkommen, noch das Gesammt-Einkommen ist, sondern das letztere vermehrt um den üblichen „Nötigen Unterhalt" und die Kosten der Behandlung.

Das Alter, bei welchem die verdiensterzeugende Periode als abgeschlossen gelten soll, richtet sich nach den verschiedenen Beschäftigungen und den verschiedenen Ländern.

Das in dem einzelnen Falle aufgenommene Beweismaterial mag dem Aktuar zu Hülfe kommen, wenn nicht, so sollten sich seine Schlüsse auf die Statistik stützen.

Bezeichnet man das „Netto-Ueberschuss-Einkommen" mit k, das Gesammt-Einkommen vermehrt um den „Nötigen Unterhalt" und die Kosten der Behandlung durch c, gebraucht die üblichen Zeichen für die anderen Werte, und nimmt ferner an, dass das „Netto-Ueberschuss-Einkommen" bis zum Alter $x + n$, bei welch' letzteren das verdiensterzeugende Alter auf jeden Fall für abgeschlossen gilt, als konstant an, so hat man die folgende Formel:

$$k\bar{a}_{x\overline{n}|} - \frac{c(K_x - K_{x+n}}{52D_x}$$

Wenn verlangt wird, dass der Wert eines Lebens auf der Basis eines steigenden Einkommens auf Grund von Aussichten auf Beförderung bestimmt werde, so wird das Problem etwas verwickelter. Bezeichnet man in solchem Falle den gegenwärtigen Wert des „Netto-Ueberschuss-Einkommens" mit k, das Gesammt-Einkommen mit c, und nimmt an, dass die Steigerung in arithmetischer Progression vor sich geht, und zwar mit einem jährlichen Zuwachs von g zum Netto-Ueberschuss-Einkommen, und mit einem jährlichen Zuwachs von h zum Brutto-Einkommen, so wird die Formel, von dem Alter x ausgehend:

$$k(v\bar{a})_{x\overline{n}|} - \frac{\left[c(K_x - K_{x+n}) + h\sum_{s=1}^{s=n}(K_{x+s} - K_{x+n})\right]}{52D_x}$$

Wenn ein Grund für die Annahme vorhanden sein sollte, dass das Einkommen nach dem Alter $x + s$ abnimmt und zuletzt beim Alter $x + n$ erlischt, so ergiebt sich durch passende Aenderungen der letzten Formel der verlangte Abzug.

2. Wo die zu ersetzende Summe dem Werte des Interesses des Ansprucherhebenden an dem Leben des Verstorbenen gleich sein soll, oder wo solches Interesse, im Falle der ganze Wert zu ersetzen ist, unter die Ansprucherhebenden verteilt werden soll im Verhältnis des Wertes der Vergütung, welche jeder derselben von dem Verstorbenen hätte erwarten können.

Fall a. Der Ansprucherhebende empfing ein Einkommen oder eine Unterstützung von dem Verstorbenen bei seinem Tode und hat einen Anspruch auf ein solches Einkommen oder eine solche Unterstützung, als während der gleichzeitigen Dauer seines Lebens und der verdiensterzeugenden Lebens-Periode des Verstorbenen bestanden haben würde.

Sei x = dem Alter des Verstorbenen zur Zeit des Todes,
y = dem Alter des Ansprucherhebenden an demselben Tage,
k' = dem jährlichen Einkommen, welches dem Ansprucherhebenden von dem Verstorbenen zukam,
n = der Anzahl der Jahre bis zum Ende der verdiensterzeugenden Lebens-Periode.

Der Wert ist offenbar gleich dem Werte einer Leibrente von k' während des gleichzeitigen Bestehens der Verbundenen Leben, abzüglich des gegenwärtigen Wertes des Einkommens, welches y durch Arbeitsunfähigkeit von x verloren geht.

Sei s_{x+n} = der Wahrscheinlichkeit des Eintretens von Krankheit (in Wochen ausgedrückt) während des auf $x+n$ folgenden Lebensjahres; die Wahrscheinlichkeit, dass x das Alter $x+n$ überleben wird und dann von dieser Krankheit betroffen wird, wenn gleichzeitig y am Leben bleibt, $= {}_{r+\frac{1}{2}}p_{xy}{}^{s}x+r$.

Der gegenwärtige Wert dieser Wahrscheinlichkeit ist:

$$v^{r+\frac{1}{2}}\,{}_{r+\frac{1}{2}}p_{xy}\,{}^{s}x+r = v^{r+\frac{1}{2}}\frac{l_{x+r+\frac{1}{2}:\,y+r+\frac{1}{2}}{}^{s}x+r}{l_{xy}} = \frac{D_{x+r+\frac{1}{2}:\,y+r+\frac{1}{2}}{}^{s}x+r}{D_{xy}}$$

Man setze $$\Sigma D_{x+\frac{1}{2}:\,y+\frac{1}{2}}{}^{s}x = K_x^{xy}$$

Dann haben wir für den Wert des Interesses den Ausdruck:

$$k'\left(\bar{a}_{xy\overline{n}|} - \frac{K_x^{xy} - K_{x+n}^{xy}}{52D_{xy}}\right).$$

Diese Formel ist anwendbar auf den Fall, wo der Ansprucherhebende durch den Tod des Verstorbenen zur Witwe geworden ist, oder wo geklagt wird auf Zahlung des Wertes, gewöhnlich für „Dienste," von seiten eines zum Witwer gewordenen Mannes.

In Fällen, wo das Alter des Verstorbenen und des Ansprucherhebenden einander sehr nahe kommen, wird keine grosse Einbusse an Genauigkeit entstehen, wenn anstatt $\frac{K_x - K_{x+n}^{xy}}{52D_{xy}}$ der Ausdruck $\frac{K_x - K_{x+n}}{104D_x}$ abgezogen wird, welcher letztere natürlich leichter zu ermitteln ist als der erstere.

Betreffs des Abzuges mag bemerkt werden, dass die Unterstützung der Frau nicht sofort bei eintretender Arbeitsunfähigkeit ihres Mannes aufhört; und wo die Arbeitsunfähigkeit fortbesteht, mag sie noch Unterstützung beziehen aus den dem Manne gehörigen investirten Fonds. Andererseits aber könnte sie im Falle seines Todes mit den Kosten der Unterstützung und Behandlung und Bedienung belastet werden. Jeder Fall muss daher für sich betrachtet werden.

Fall b. Der Ansprucherhebende hatte kein Einkommen oder empfing keine Unterstützung von dem Verstorbenen bei seinem Tode, aber würde nach Ablauf einer festgesetzten Periode dazu berechtigt gewesen sein, wenn der Verstorbene am Leben geblieben wäre, wie z. B. im Falle einer Verlobten.

Sei r = dem Zeitraum, während welchen Einkommen oder Unterstützung nach dem Tode des Verstorbenen hätte aufgehoben werden sollen.

Der Wert des Interesses wird:

$$k'\left({}_{n|}\bar{a}_{xy\overline{n-n|}} - \frac{K^{xy}_{x+r} - K^{xy}_{x+n}}{52D_{xy}}\right).$$

Fall c. Der Ansprucherhebende bezog Einkommen oder Unterstützung von dem Verstorbenen und ist nun zu solchem Einkommen oder solcher Unterstützung berechtigt, als während der gleichzeitigen Dauer der verdiensterzeugenden Lebensperiode des Verstorbenen und des Lebens des Ansprucherhebenden bestanden haben würde, aber in jedem Falle auf t Jahre beschränkt; wie beispielsweise in dem Falle eines Kindes, welches auf Unterstützung bis zur Erreichung der Grossjährigkeit Anrecht hat.

Wo $n =$ oder $< t$ ist, wird die für die Lösung des Falles a gegebene Formel anwendbar sein.

Wo $n > t$, giebt die folgende Formel den Wert:

$$k'\left(\bar{a}_{xy\overline{t|}} - \frac{K^{xy}_{x} - K^{xy}_{x+t}}{52D_{xy}}\right),$$

mit anderen Worten, die Formel ist dieselbe, nur ist t durch n ersetzt.

Fall d. Der Ansprucherhebende war nicht im Bezuge von Einkommen oder Unterstützung von dem Verstorbenen, aber in der Erwartung desselben bei eintretendem Tode von z, falls x denselben überleben sollte, und zwar sollte Einkommen oder Unterstützung fortdauern während des gleichzeitigen Bestehens der verdiensterzeugenden Lebenszeit von x und der ganzen Lebenszeit von y.

Der Wert ist:

$$k'\left\{\bar{a}_{xy\overline{n|}} - \bar{a}_{xyz\overline{n|}} - \left(\frac{K^{xy}_{xy} - K^{xy}_{x+n}}{52D_{xy}} - \frac{K^{xyz}_{x} - K^{xyz}_{x+n}}{52D_{xyz}}\right)\right\}$$

Fall e. Das Interesse des Ansprucherhebenden ist ein Anrecht auf Unterstützung in vorgerücktem Alter, oder im Falle früher eintretender Arbeitsunfähigkeit.

Sei $t =$ der Periode bis zur eintretenden Arbeitsunfähigkeit von y durch Alter.

Dann wird, wenn man die Wahrscheinlichkeit ausser Acht lässt, dass vor Ablauf von n Jahren x und y beide arbeitsunfähig werden, der Wert wie folgt:

$$k'\left({}_{t|n-t}\bar{a}_{xy} + \frac{K^{xy}_{xy} - K^{xy}_{y+t}}{52D_{xy}}\right).$$

Gewöhnlich kann das gleichzeitige Eintreten von Arbeitsunfähigkeit vernachlässigt werden, wenn t ein bedeutender Zeitraum von Jahren ist; denn die Haupt-Chance des gleichzeitigen Eintreffens von Arbeitsunfähigkeit besteht nur dann, wenn y schon durch das Alter arbeitsunfähig geworden ist, so dass Arbeitsunfähigkeit von x Gleichzeitigkeit des Eintreffens zur Gewissheit macht, es müsste denn x sowohl wie y dem Eintreten der Arbeitsunfähigkeit in ungewöhnlichem Grade unterworfen sein.

Fall f. Das Interesse des Ansprucherhebenden besteht nur in einem mutmasslichen Besitz-Titel für die Nachlassenschaft, welche der Verstorbene aus seinem Verdienste angesammelt haben würde, wenn er am Leben geblieben wäre.

Sei k = der Netto-Summe, von der bewiesen ist, dass sie von dem Verstorbenen aus seinem Einkommen jedes Jahr erspart und umsichtig angelegt worden wäre.

Sei c = seinem Gesammt-Einkommen, und daher $c - k$ = seinem „Nötigen Unterhalt."

Dann haben wir als einen Ausdruck für den Wert des Interesses:

$$k\bar{a}_{x\overline{n}|} - (C-K)_{n|}\bar{a}_x - c\frac{K_x - K_{x+n}}{52D_x}.$$

Von Interessen in anderer Form kann man sich leicht Vorstellung machen, aber das Vorangehende schliesst alles das ein, was gewöhnlich in der Praxis vorzukommen pflegt. Aber es muss hier angenommen werden, dass sehr oft Interessen an Einkünften, entweder an bestehenden oder zu erwartenden, und Interessen an dem übrig bleibenden Nachlass bei denselben Ansprucherhebenden vorkommen.

3. Wo das Gesetz vorschreibt, was das Interesse der ansprucherhebenden Personen sein kann; wo beispielsweise das Gesetz verlangt, dass eine der Fahrlässigkeit schuldige Person die Witwe während der Witwenschaft, abhängige Eltern während der Abhängigkeit und Kinder während der Minderjährigkeit unterstützt.

Das einzige versicherungs-technische Problem besteht darin, den gegenwärtigen Werth dieser Interessen zu finden, wenn dieselben durch einmalige Zahlung abzulösen sind.

Fall a. Unterstützung der Witwe während der Witwenschaft.

Wenn k' = dem jährlichen, zu ihrer Unterstützung beizutragenden Betrage und x = dem Alter ist, so ist, wenn die von Dr. Thomas Bond Sprague in J. I. A. XXI gebrauchten Zeichen in Anwendung kommen, der Werth in folgender Formel gegeben:

$$k'\int_0^{\omega} v^n {}_np_{y+n}\left(1-m_{y+n}\right) = \bar{a}_y - (m\bar{a})_y$$

Diese Formel würde aber mit Sicherheit und Billigkeit nur in zwei Fällen anwendbar sein, und zwar: Wo das Gericht die einmalige Abfindung anordnet, ohne dass eine der beiden Partheien darum nachsucht, oder wo die der Fahrlässigkeit schuldig befundene Person darum einkommt; wo die Witwe darum einkäme, würde ein starker Verdacht bestehen, dass sie wieder zu heirathen beabsichtigt. Und andererseits könnte die Formel unbillig sein in Fällen, wo die der Fahrlässigkeit schuldig befundene Person die Petition einreicht, wenn die benutzten Zahlen auf einer durchschnittlichen Heiraths-Erfahrung basirt wären oder wenn die Witwe aus irgend einem Grunde zur Heirath weniger annehmbar wäre wie andere Frauen.

Von diesem Standpunkte ausgehend, bestimmen die Russen, dass die Person, welche die Schönheit einer Frau zerstört, dieselbe unterstützen muss bis sie einen Mann findet, ein Fall, mit dem wir uns später befassen werden.

Fall b. Unterstützung eines Kindes während der Minderjährigkeit.

Sei r = die Reihe von Jahren bis zur Grossjährigkeit.

Der Werth ist: $k'\bar{a}_{y\overline{r}|}$

Fall c. Unterstützung eines der bereits abhängigen Eltern während der Abhängigkeit.

Der Werth ist: $k'\bar{a}_y$

Fall d. Vorkehrung für die Unterstützung eines der Eltern für den

Fall der durch Alter oder vorherige Arbeitsunfähigkeit eintretenden Abhängigkeit.

Der Werth ist: $k'\left(t|\bar{a}_y + \frac{K_y - K_y + t}{D}\right)$

Bei der Verwendung dieser Formel ist es gewöhnlich am besten, K als den für eine Krankheit von mehr als einjähriger Dauer berechneten Werth zu nehmen.

Es verdient bemerkt zu werden, dass bei billiger Auslegung eines Gesetzes, durch welches Ersatz für den vollen Werth eines Lebens vorgesehen ist, das Leben eines jungen Kindes oder selbst eines noch ungeborenen Kindes einen Werth besitzt, für den Entschädigung zu leisten ist.

Ein Netto-Ueberschuss-Einkommen ist wohl nicht nachzuweisen, aber dass ein Ueberschuss-Einkommen vorhanden sein würde, wenn das Kind in guter körperlicher und geistiger Gesundheit das Alter der Reife erreichen sollte, mag als gewiss angenommen werden, und alles Uebrige, nämlich Wahrscheinlichkeit des Ueberlebens, guter Gesundheit und eines Einkommens, sind Sachen für Durchschnitts-Berechnung.

Mit Fötal-Mortalität hat sich Dr. Karl Pearson in Bio-Metrika befasst, kurz, es gibt kein Element bei solchen Berechnungen, welches ein Actuar mit Hilfe der bestehenden Statistik nicht mit entschieden besserem Resultate zu bearbeiten im Stande wäre, als zu rathen oder die Sache als ein schlechtes Stück Arbeit aufzugeben.

Selbst unter den Gesetzesparagraphen, durch welche der Ansprucherhebende auf sein thatsächliches Interesse an dem Leben beschränkt ist, kann das Interesse eines der Eltern an dem Leben eines Kindes, obwohl dasselbe noch nicht geboren sein mag, auf Grund von Durchschnitts-Annahmen berechnet werden.

In Allem, was vorangeht, ist nichts gesagt worden über Entschädigung für Gram, Nerven-Erschütterung des Ansprucherhebenden, noch über Kosten der Behandlung und des Begräbnisses.

Diese oder einige derselben mögen Entschädigung nöthig machen, aber in einem Falle kann der ausgelegte Betrag genau festgestellt werden, und in den andern Fällen ist derselbe nicht zu berechnen, ausgenommen, dass da, wo die Wirkung von Gram und Nervenerschütterung deutlich hervortritt und besonders, wo sie permanent ist, ein Fall von Gesundheits-Verschlechterung und Arbeitsunfähigkeit als ein secundärer Effect constatirt werden kann, vorausgesetzt, dass dies zulässig ist.

In nächster Reihe wollen wir unsere Aufmerksamkeit Fällen von Arbeitsunfähigkeit durch Fahrlässigkeit eines Andern zuwenden. Solche Fälle können total oder partiell, permanent oder temporär sein, und es können auch Fälle von verminderter Lebens-Aussicht ohne thatsächliche Arbeitsunfähigkeit vorkommen.

1. Verminderte Lebens-Aussicht ohne Arbeitsunfähigkeit.

Verletzungen werden häufig als die Ursache der verminderten Aussicht auf langes Leben angegeben, und obwohl dies nicht oft ohne gleichzeitige Arbeitsunfähigkeit eintritt, so mag es doch für sich betrachtet werden als Grundlage für das Folgende:

Es sei k = dem Einkommen, x = dem wirklichen Alter, und $x + t$ = dem Alter, welches dem Grade der verminderten Lebensaussicht entspricht, und n' = der verdiensterzeugenden Lebensperiode vom Alter $x + t$ an.

Dan stellt sich die Formel für den Schadenersatz wie folgt:

$$k\left(\bar{a}_{x\overline{n}|} - \bar{a}_{x+t\overline{n'}|}\right)$$

Man könnte annehmen, dass k' als der Netto-Werth des Lebens über den „Nötigen Unterhalt" hinaus bestimmt werden sollte, aber das Leben ist dem Menschen blos vom finanziellen Standpunkte aus sein ganzes Einkommen werth.

2. Dauernde, gänzliche Arbeitsunfähigkeit. Wie wir gesehen haben, zieht dieselbe mehr als den Verlust des ganzen Verdienstes nach sich; sie schliesst auch die erhöhten Kosten für den „Nötigen Unterhalt" in Folge der Behandlung und Bedienung ein.

Es sei $c =$ dem Total-Jahresverdienst vor der Verletzung, vermehrt um die erhöhten Kosten; $k =$ dem wirklichen Einkommen vor der Verletzung. Es sei ferner $n =$ der Anzahl der Jahre bis zum Ende des verdiensterzeugenden Lebens.

Fall a. Es wird angenommen, dass die Aussicht des Anspruch-erhebenden auf ein langes Leben nicht vermindert ist, und dass es keine Mehrkosten in Folge von Verletzungen nach n Jahren über die üblichen Extra-Auslagen hinaus geben wird, nachdem die verdienst-erzeugende Periode vorüber ist.

Die Formel ist:

$$c\left(\bar{a}_{x\overline{n}|} - \frac{K_x - K_{x+n}}{52D_x}\right)$$

Der Abzug ist durch die Thatsache begründet, dass dauernde Arbeits-unfähigkeit Unfähigkeiten anderer Art ausschliesst.

Fall b. Es wird angenommen, dass die Aussicht auf langes Leben nicht vermindert ist, aber dass die jährliche Extra-Auslage im Betrage von b nach n Jahren fortbesteht.

Die Formel ist:

$$c\left(\bar{a}_{x\overline{n}|} - \frac{K_x - K_{x+n}}{52D_x}\right) + b_{n|}\bar{a}_x.$$

Fall c. Es wird angenommen, dass die Aussicht auf langes Leben so vermindert ist, dass x nur die Durchschnittsaussicht eines Menschen vom Alter $x + t$ hat, und dass keine Extra-Auslagen über n' Jahre hinaus, — der verdiensterzeugenden Periode für das Alter $x + t$, — zu berücksichtigen sind. Die Formel lautet:

$$k\left(\bar{a}_{x\overline{n}|} - \bar{a}_{x+t\overline{n'}|}\right) + c\left(\bar{a}_{x+t\overline{n'}|} - \frac{K_{x+t} - K_{x+t+n'}}{52D_{x+t}}\right)$$

Der Ansprucherhebende hat 1) sein Gesammt-Einkommen für die durch Verschlechterung der Gesundheit verlorengegangene verdienst-erzeugende Periode des Lebens eingebüsst, und 2) ist er, als im Alter von $x + t$ Jahren stehend, dem auf n Jahre beschränkten jährlichen Verlust von c ausgesetzt, letzteres aber vermindert um den Gegenwert für die Befreiung von der Möglichkeit, noch weiter arbeitsunfähig zu werden.

Fall d. Desgleichen wie im letzten Falle, aber mit nach Verlauf von n' Jahren beginnenden Sonder-Ausgaben im Betrage von b.

Die Formel ist:

$$k\left(\bar{a}_{x\overline{n}|} - \bar{a}_{x+t\overline{n'}|}\right) + c\left(\bar{a}_{x+t\overline{n'}|} - \frac{K_{x+t} - K_{x+t+n'}}{52D_{x+t}}\right) + b_{n'|}\bar{a}_{x+t}$$

3. Dauernde teilweise Arbeitsunfähigkeit, weder zunehmend, noch abnehmend.

Fall a. Entspricht dem Falle a unter dauernder gänzlicher Arbeits-

unfähigkeit. Bedeutet c' die jährliche Einbusse an Verdienst, so lautet die Formel:

$$c'\left(\bar{a}_{x\overline{n}|} - \frac{K_x - K_{x+n}}{52D_x}\right).$$

Der Ansprucherhebende wird durch seine dauernde teilweise Arbeitsunfähigkeit nicht befreit von der Möglichkeit, gänzlich arbeitsunfähig zu werden, aber der ihm durch das Eintreten des letzteren erwachsende Schaden beträgt jährlich $(c - c')$ anstatt c, weil c' des Schadens ausgeglichen wird.

Fall b. Desgleichen wie Fall a, nur dass man annimmt, die Arbeitsunfähigkeit habe sowohl die Lebensaussicht verringert, wie auch die Wahrscheinlichkeit gänzlicher Arbeitsunfähigkeit vergrössert, so dass also $x + t$ bei einer verdiensterzeugenden Periode von n' Jahren genau das wirkliche Alter darstellt.

Die Formel lautet dann:

$$k\left(\bar{a}_{x\overline{n}|} - \bar{a}_{x+t+\overline{n}|}\right) + c'\left(\bar{a}_{x+t\overline{n}|} - \frac{K_{x+t} - K_{x+t+n'}}{52D_{x+t}}\right).$$

Fall c. Desgleichen wie Fall b, nur mit dem Unterschiede, dass die Lebensaussicht als diejenige für das Alter x, die Aussicht auf gänzliche Arbeitsunfähigkeit als diejenige für das Alter $x + t$ angenommen wird.

Die Formel lautet:

$$c'\bar{a}_{x\overline{n}|} + (c-c')\left({}_{n'|}{}_{n-n'}\bar{a}_x - \frac{K_x - K_{x+n}}{52D_x} + \frac{K_{x+t} - K_{x+t+n'}}{52D_x}\right).$$

Die Idee ist, dass, da die Lebensaussicht nicht verringert ist, x Anrecht hat auf eine n Jahre lang laufende Leibrente von c', welche nach n' Jahren zu c anwächst, diese — wegen der Verschlechterung in dieser Hinsicht — vermehrt um den grösseren Wert der Wahrscheinlichkeit, dass die teilweise zur gänzlichen Arbeitsunfähigkeit anwachse.

4. Dauernde teilweise Arbeitsunfähigkeit, zunehmend oder abnehmend.

h bezeichne die jährliche Zunahme oder Abnahme.

Fall a. Entspricht dem Fall a unter Klasse 2, nur dass hier jedes Jahr eine Zunahme oder Abnahme im Betrage von h zu berücksichtigen ist. Die Formel lautet:

$$c'(v\bar{a})_{x\overline{n}|} - \frac{\left[c\left(K_x - K_{x+n}\right) \pm h\sum_{s=1}^{s=n}\left(K_{x+s} - K_{x+n}\right)\right]}{52D_x}$$

Der Abzug ist dadurch begründet, dass, im Falle x von dauernder Arbeitsunfähigkeit betroffen wird, die Aenderung die Wirkung hat, den weiteren Verlust zu vermindern (bei einer Zunahme) oder zu vermehren (bei einer Abnahme).

Fall b. Entspricht dem Falle b unter Klasse 3.

Die Formel lautet:

$$k\left(\bar{a}_{x\overline{n}|} - \bar{a}_{x+t\overline{n}|}\right) + c'(v\bar{a})_{x+t\overline{n}|} - \frac{c\left(K_{x+t} - K_{x+t+n'}\right) \pm h\sum_{x=1}^{s=n'}\left(K_{x+t+s} - K_{x+t+n'}\right)}{52D_{x+t}}$$

Fall c. Entspricht dem Falle c unter Klasse 3.

Die Formel lautet:

$$c'(v\bar{a})_{x\overline{n}|} + c'_{n|}\, {}_{n-n'}\bar{a}_x - \frac{c'\left(K_x - K_{x+n}\right) \pm h \sum_{s=1}^{s=n}\left(K_{x+s} - K_{x+n}\right)}{52 D_x} + \frac{c'\left(K_{x+t} - K_{x+t+n'}\right) \pm h \sum_{s=1}^{s=n'}\left(K_{x+t+s} - K_{x+t+n'}\right)}{52 D_x}$$

5. Vorübergehende gänzliche Arbeitsunfähigkeit.

Fall a. Das Leben ist nicht verschlechtert. Wenn die Periode der Arbeitsunfähigkeit auf r Jahre angesetzt wird, so lautet die Formel:

$$c\bar{a}_{x\overline{r}|}$$

Fall b. Das Leben x wird gleich dem Leben $x + t$. Die Formel lautet:

$$c\left(\bar{a}_{x\overline{r}|} + \bar{a}_{x\overline{n}|} - \bar{a}_{x+t\overline{n'}|}\right).$$

6. Vorübergehende teilweise Arbeitsunfähigkeit.

Fall a. Das Leben ist nicht verschlechtert worden. Der Grad der Arbeitsunfähigkeit ist constant r Jahr hindurch und verschwindet dann gänzlich. Die Formel lautet:

$$c'\bar{a}_{x\overline{r}|}$$

Fall b. Desgleichen, nur dass der Grad der Verschlechterung sich um h jedes Jahr verbessert. Die Formel lautet:

$$c'(v\bar{a})_{x\overline{r}|}$$

Fall c. Desgleichen wie Fall a, nur mit dem Unterschiede, dass das Leben verschlechtert worden ist. Formel:

$$c\left(\bar{a}_{x\overline{n}|} - \bar{a}_{x+t\overline{n'}|}\right) + c\bar{a}_{x+t\overline{r}|}$$

Fall d. Desgleichen wie Fall b, nur mit dem Unterschiede, dass das Leben verschlechtert worden ist. Formel:

$$c\left(\bar{a}_{x\overline{n}|} - \bar{a}_{x+t\overline{n'}|}\right) + c'(v\bar{a})_{x+t\overline{r}|}$$

7. Arbeitsunfähigkeit, welche nur die Heirats-Aussichten vermindert.

Der Betrag des jährlichen Einkommens oder der Unterstützung, welchen man auf diese Weise verliert, möge mit c' bezeichnet werden.

Fall a. Bewertung des wirklichen Schadens.

Wenn der Grad der verminderten Heirats-Aussichten durch Erhöhung des Alters von x auf $x + t$ dargestellt wird, so ergiebt sich die Formel:

$$c'\left\{(m\bar{a})_x - (m\bar{a})_{x+t}\right\}$$

Fall b. Bewertung nach der russischen Regel, wonach Unterstützung gewährt werden muss vom Alter x bis die Heirat tatsächlich erfolgt. Die Formel lautet:

$$c'\left[\bar{a}x - (m\bar{a})_{x+t}\right].$$

Die vorstehenden Betrachtungen sind vieler Verbesserungen fähig, welche natürlich andere Formeln bedingen würden; und es wird oft nötig sein, die gegebenen Formeln abzuändern um besonderen Fällen gerecht zu werden.

Bestehende Versicherungs-Policen.

Die Gerichtshöfe Grossbritanniens, denen man sich in einigen Fällen anderswo angeschlossen hat, haben daran festgehalten, dass bestehende Versicherungen auf das Leben des Verstorbenen verwendet werden können zur Verminderung der Summe, welche von der Partei zu zahlen ist, die den Tod durch Fahrlässigkeit verschuldet hat. Dieser Regel zufolge wird nicht der volle Betrag solcher Lebensversicherung abgezogen, sondern nur der Wert der Beschleunigung in der Auszahlung infolge des früheren Todes, oder aber der gegenwärtige Wert der Prämien, welche in Zukunft auf genannte Versicherung gezahlt worden wären.

Herr Richard Teece, F.I.A., F.F.A., hat einen sehr interessanten Vortrag über diesen Gegenstand vor dem Insurance Institute zu Neu Süd-Wales kürzlich gehalten. Da der Inhalt dieses Vortrages streng genommen nichts mit dem Zwecke gegenwärtiger Abhandlung zu thun hat, so werden diejenigen Herren Congressmitglieder, welche sich dafür interessiren, hiermit auf den genannten Vortrag selbst verwiesen.

Die gesetzliche Regel dürfte als veraltet zu betrachten sein, da sie der der Fahrlässigkeit schuldigen Person einen Vorteil auf Grund der Umsicht des Verstorbenen, oder des Anspruchserhebers, oder beider, gewährt.

Aus dem Vorhergehenden ist ersichtlich, dass die Dienste der Aktuare sehr nützlich sein können für Gerichtshöfe und Geschworene zur Erreichung billiger und gerechter Urteile in Prozessen dieser Art, oder wenn es sich darum handelt, derartige Urteile durch Schiedsgerichte zu fällen.

Man mag mit Recht einwenden, dass solche Berechnungen manche der Elemente übergehen dürften — und gewöhnlich auch übergehen werden; man kann aber füglich nicht behaupten, dass Jemand, weil er nicht alle Elemente in seine Berechnung aufnehmen kann, überhaupt nicht rechnen, sondern seine Zuflucht zu Mutmassungen nehmen sollte.

Andererseits ist das Resultat einer solchen Berechnung eine bedeutend sicherere Grundlage für die Bewertung der übrigen noch unermittelten Elemente, als der ursprüngliche Ausgangspunkt mit all seinen unbekannten Elementen darbot. Solche Berechnungen, wenn sie nur unter Beachtung von vernünftigen Regeln zur Zulassung von Beweismaterial angewandt werden, müssen unfehlbar Gerichtshöfe in den Stand setzen, sich von dem wirklich erlittenen Schaden eine klarere und besser definirte Ansicht zu bilden.

RÉSUMÉ.

ÉVALUATION, DANS LES ACTIONS POUR RECOUVRER DES DOMMAGES POUR LA VIE HUMAINE, DÉTRUITE OU BLESSÉE, PAR LA NÉGLIGENCE D'AUTRUI.

PAR MILES M. DAWSON.

Revue du développement et de la nature du droit de l'action.

L'emploi des actuaires en comptant la valeur. Ordonnances singulières des cours.

Méthodes employées, telles que "l'attente," "la vie probable," "valeur d'une annuité," "prime pour annuité," etc.

"Net surplus de revenu au dessous de l'entretien."

Évaluation de la vie détruite.

Analyse des principes. Sélection de tables.

Objections qui peuvent s'élever au témoignage:

1. Valeur recouvrable d'une vie.
   Revenu montré fixe.
   Revenu montré à accroître ou décroître. Formule.
2. Valeur au prétendant de l'assurance sur la vie.
   Cinq exemples discutés. Formules.
3. Valeur d'annuité ordonnée par la loi à être payée comme compensation.
   Trois exemples discutés. Formules.

Évaluation de la vie d'un enfant, ou même d'un enfant à naître.

Évaluation de la vie invalidée.

1. Attente diminuée de vie invalidée. Formule.
2. Incapacité totale et permanente.
   Quatre exemples discutés. Formules.
3. Incapacité partielle et permanente; constante.
   Trois exemples discutés. Formules.
4. Incapacité permanente, partielle, accroissante ou décroissante.
   Trois exemples discutés. Formules.
5. Incapacité totale, temporaire.
   Deux exemples discutés. Formules.
6. Incapacité partielle et temporaire.
   Quatre exemples discutés. Formules.
7. Incapacité qui nuit seulement à l'éligibilité au mariage.
   Deux exemples discutés. Formules.

Polices actuelles de l'assurance.

Ordonnance anglaise.

Conclusion.

RELATIONSHIP OF INITIAL EXPENSES AND SELECTION TO VALUATION.

By Henry Moir, F.F.A., F.I.A.,

Actuary Provident Savings Life Assurance Society of New York.

The question of making an allowance in the valuation of a life assurance company for the expense of securing the business has been receiving particular attention recently in Austria and Germany. The subject is one which has for many years been prominent in the thoughts of British actuaries; and it is also at the present time of the greatest importance to many companies in America. This subject may therefore fitly and profitably be discussed at an International Congress; and I desire particularly to bring under observation the new valuation formula submitted to the Actuarial Society of America at its meetings held in May of this year.

It is well understood that economic and scientific theories must conform to commercial practice; and the only true success is achieved when the two harmonize. That the writing of new business and collecting the first premium for life assurance is very much more expensive than taking care of business already placed, is a commercial fact which cannot be ignored. One or two companies, throughout a long and useful career, have persisted in the practice of paying no commissions and obtaining their business without any special initial expense. But these companies have made no headway; their sphere of influence is limited in the extreme; and the contemplation of their work strengthens rather than weakens the decision at which so many actuaries have arrived—that extra initial expenses have become a commercial necessity. Even from a philanthropic standpoint it must be conceded that a reasonable outlay is desirable, because greater good is accomplished by sending out to the highways and byways to bring in all who are uninsured—to extend the blessing not only to those who value it, but also to those who ignorantly or foolishly despise it. Initial expenses are thus largely incurred in what may be called missionary labor.

There is no need to amplify remarks regarding this condition, which is familiar to all practising actuaries. The reasons have been much discussed, and the position is fully understood. It is generally conceded that the placing of a large and otherwise satisfactory volume of new business should strengthen rather than weaken the position of a life assurance company; yet, under present conditions, the writing of a large new business, though it be at moderate cost, not infrequently results in an apparent loss to a life assurance company.

The formula for valuation to which attention is directed is as follows:

$$ {}_nV_x = A_{[x]+n} - P_x \, a_{[x]+n}. $$

It was given the name "Select and Ultimate" by its author, Mr. M. M. Dawson, and the theory is that the net premiums on which the office premiums are based are taken from an *ultimate* mortality table, after the early effects of Selection have disappeared; and that the saving by reason of light mortality in the early years may properly be used as a direct

offset against initial expenses. The saving in mortality during these years is caused by good management on the part of the company; and it seems reasonable that this saving should be offset in the first place against the expenses incurred in introducing the selected lives. Some companies make a larger amount and some a smaller amount of profit from light mortality; and, in like manner, some companies spend more freely than others in acquiring their new business. There is clearly a relationship between these two; because if no expense whatever is incurred, there will be no saving from light mortality: if the business was written without Selection on the part of the company the mortality would exceed that of the general population.

There are indications in the writings of one or two prominent actuaries—notably Dr. Sprague and Mr. Sorley—that a somewhat similar idea had been present in their minds; but no expression seems to have been given to it in any direct form or simple formula like that now put forward.

After the period for which Selection endures has passed, the values deduced by this formula are the usual net values by the ultimate table, because of course the formula becomes

$$ {}_nV_x = A_{x+n} - P_x \, a_{x+n}. $$

If the period of selection be five years, the full reserve, ${}_5\sqrt{x}$, is therefore set aside by the time the full mortality rates are experienced; and the reserves in the earlier years are equitably and scientifically graded according to the select mortality experience.

It is recognized by American actuaries that if the full reserves be carried from the date of issue, each new policy represents an apparent loss to the company for several years after it is placed upon the books. But it is also generally considered that, owing to the light mortality of the early years, the policy is enabled to make good its position and become self-supporting at the end of a period of from three to five years. The new valuation formula provides the full reserve after the period of Selection has passed; and it sets aside that reserve in accordance with the facts of the case as regards Selection, instead of following any arbitrary theory, and carrying sums in reserve which have not been earned by the policy, but have been taken from the surplus belonging to the older policy holders.

If in the first formula n be taken as the equal to zero, we obtain the value of a policy which has just been written and issued, but under which the first premium has not been paid, namely:

$$ {}_0V_x = A_{[x]} - P_x \, a_{[x]}. $$

In all cases this value is negative; and it affords a means of measuring the limit of extra expense, over and above the loading, which may be incurred so as to procure new business without loss to the company, when net premiums are computed from an *ultimate* table. The position of the policy at that time is, by assumption, that all the expenses have been incurred for writing the application, for medical examination, for commission, etc.; but that no premium has yet been received from which these expenses can be met. The policy therefore bears properly a negative value at that moment.

In other respects the formula explains itself; and it only remains for me to mention briefly its advantages and its limitations, and to submit a few calculations which show what the practical outcome of this method of valuation would be.

For the benefit of those who are not familiar with the conditions of

life assurance in America, I may mention that many companies here (about one-half in number) write their policies as one-year-term contracts for the first year, to be renewed at the end of the year, at the next higher age, as Life or Limited Payment Life or Endowment policies. They do more than simply agree to make valuations in this manner; the policy contracts are actually drawn in this form, so that the net reserve value of the policy during the first year is that for a one-year-term contract. The Life, Limited Payment Life, or Endowment policy becomes effectual at the commencement of the second year and carries thereafter the corresponding net reserve value. But this method is not entirely satisfactory in all circumstances. It applies well in the case of whole life assurances, but for a short Limited Payment or Endowment assurance, say for ten years, it becomes an unsatisfactory makeshift. The legal construction of the contract is a one-year-term policy, followed by a nine payment Life or a nine-year Endowment, and therefore it may be properly valued as such. The effect of this valuation is that a saving may be effected in the first year, which, of course, comes back eventually to the policyholder in the form of bonus distributions. In the case of a non-participating ten-yearEndowment Assurance, the company would have to charge a premium not less than the net rate for a nine-year Endowment, and would carry forward from the first year a sufficient sum to meet future expenses.

It is the practice of American companies also to base their office premiums on net premiums deduced from an aggregate table—usually the American Experience—a table which represents very closely the rates of mortality actually experienced after the first five years of assurance. The same conditions hold in some other countries, although not in Great Britain, where the question of Selection has received greater attention and has been scientifically developed, the net premiums being there taken from a Select table.

One of the most obvious limitations of the new formula is that even after the first premium has been paid, the policy might carry a negative value. Such negative values are not good assets, because the policies might be discontinued at any time. In the practical application of this method of valuation it would therefore be necessary that steps be taken to eliminate negative values. The theory on which the formula is based solves the question as to what the minimum net value of any policy should be: it should equal the mortality risk at select rates from the date of valuation until the next premium falls due. By the method of individual policy valuations common in America, this question can be treated in the simplest possible manner; and even in group valuations no difficulty need be experienced.

An ultimate table is not suitable for the calculation of premium rates under term policies, especially when the term is of short duration, such as five years or less. It has been shown beyond doubt that such policies are subject to heavier mortality than the select rates deduced from the general experience of companies; nevertheless the risk is less than that provided for by an ultimate table. This limitation, however, only applies to the calculation of the premiums to be charged. The reserve for such policies would be correctly calculated by the new formula, or by taking the mortality risk from the date of valuation to the date of renewal, as already explained.

One of the greatest advantages of this method of valuation is that it makes a scientific allowance for initial expense (in addition to the loading in the first premium) not only in the case of Whole Life, but also under Limited Payment policies and Endowment Assurances. The allowance will be nearly the same amount under all classes, although of course the tendency will be to have a smaller allowance under a Limited Payment

policy, and a still smaller allowance under an Endowment Assurance. The reason for this is that the mortality risk under these policies is less, and therefore the saving from light mortality must in like manner be less. Seeing that the allowance for expenses would, by the new formula, be made entirely from the mortality portion of the premium, those policies in which the investment element is more pronounced will have a smaller allowance for initial expense. The writer considers this condition to be quite logical. The larger loading in Limited Payment and Endowment Assurance premiums makes provision for a larger cash outlay than under Whole Life Assurances. The amount available for expenses would therefore be a greater percentage of the sum assured, although a smaller percentage of the premium.

There is an analogy in principle between this method of valuation and that which is commonly applied in Great Britain—valuation by the H^m and $H^{m(5)}$ tables; the Premium P_x is taken from one section of the mortality experience, and the reversion $A_{[x]+n}$ and annuity $a_{[x]+n}$ are taken from another section. The H^m and $H^{m(5)}$ tables received the sanction of the highest authorities as providing a good approximation to Select Valuation with net premiums computed from the select table. In no circumstances, however, could the H^m and $H^{m(5)}$ valuation be set down as a net premium valuation, while the new formula provides a strictly net premium valuation, the premiums valued being at all times the net premiums on which the office rate is based.

A formula of this kind will not be approved unless it is shown that the results work out satisfactorily in practice as well as in theory. The following calculations are therefore submitted with the view of showing that the system may be made more than a mere theory. These calculations are based upon the new tables just published by the Institute and Faculty of Actuaries. Two sets of calculations have been made—the first on the assumption that the net premium be taken from the $O^{m(5)}$ table, and that the regular $O^{m(5)}$ net reserves will be carried after five years; the second is on the assumption that the net premium be taken from the *ultimate* table, and that the *ultimate* net reserves will be carried after ten years. The differences from the fifth to the tenth year are so slight as to be of no practical importance; and therefore it would be better for this purpose to assume that the light mortality from selection exists for 5 years only, and pass to the ultimate values after that initial period.

The following table shows the limit of the provision, in addition to loading made for initial expense by adopting the new method. The formula for calculation is:

$$A_{[x]} - P_x \, a_{[x]}.$$

NOTE : P_x is here taken directly from the $O^{m(5)}$ table.

Age. x.	1000 $A_{[x]}$.	1000 Px.	$a_{[x]}$.	(3) × (4).	(2) −(5) Being Expense Allowance.
(1)	(2)	(3)	(4)	(5)	(6)
20	272.24	13.14	21.521	282.79	−10.55
25	299.22	14.99	20.723	310.64	−11.42
30	330.67	17.35	19.793	343.41	−12.74
35	366.86	20.39	18.723	381.76	−14.90
40	407.84	24.31	17.511	425.69	−17.85
45	453.46	29.44	16.162	475.81	−22.35
50	503.14	36.20	14.693	531.89	−28.75
55	555.86	45.25	13.134	594.31	−38.45
60	610.27	57.48	11.525	662.46	−52.19

The results in column (6) could also be obtained by the formula $(P_x - P_{[x]})a_{[x]}$, which gives another view of the general question.

The allowance increases with the age of the assured at entry, commencing about 1% at age 20 and increasing steadily to a little over 5% at age 60. At no age under 65 is the allowance so much as the net premium. It is now many years since Dr. Sprague, in discussing this question of initial expenses, said that they might be said to absorb pretty much all the first year's premiums, especially on Whole Life Policies; and it certainly cannot be said that expenses have decreased since that statement was made.

In some countries where the first year's commission depends not upon the premium paid but upon the amount of the assurance, it might be contended that the allowance for initial expenses should be more nearly constant from age to age. But at the young ages there is a very definite limit to such expense, namely, the premium for the first year, and this will not make a sufficient allowance all round. Furthermore, the custom in America, as well as in some other countries, is to compute the agency charges on the basis of the premium collected. In such circumstances the allowance which increases with the age at almost exactly the same rate as the premiums themselves increase, is the more accurate.

The next table is in exactly the same form as the preceding, but is computed on the assumption that the select functions will be used during the first ten years. The value of P_x is therefore taken from the *ultimate* table, the first ten years of assurance having been excluded. The effect is to make the allowance a little greater at the young ages and smaller at the old.

TABLE OF $A_{[x]} - P_x \, a_{[x]}$.

Px being taken from the *ultimate* table.

Age. x.	1000 $A_{[x]}$.	1000 Px.	$a_{[x]}$.	(3) × (4).	(5) — (2) Being Expense Allowance.
(1)	(2)	(3)	(4)	(5)	(6)
20	272.24	13.20	21.521	284.08	11.84
25	299.22	15.04	20.723	311.67	12.45
30	330.67	17.39	19.793	344.20	13.53
35	366.86	20.38	18.723	381.57	14.71
40	407.84	24.29	17.511	425.34	17.50
45	453.46	29.39	16.162	475.00	21.54
50	503.14	36.11	14.693	530.56	27.42
55	555.86	45.05	13.134	591.69	35.83
60	610.27	57.18	11.525	659.00	48.73

At the younger ages the allowance for initial expense over the loading, as calculated by means of the *ultimate* table of net premiums is a little greater than that computed by the use of the $O^{m(5)}$ premium, but at the older ages the converse holds. In like manner, the reserves are smaller at the younger ages when the *ultimate* table is used, and greater at the older. The cause for this variation is to be found entirely in the net premiums, seeing that the Select Reversion and Annuity values are the same in each case. The net premiums by the ultimate table are a little smaller than those by the $O^{m(5)}$ at the younger ages and a little larger at the older ages; hence the difference.

The following tables show the terminal reserve values for decennial ages, as calculated by the new formula:

SELECT AND $O^{M(5)}$ RESERVES—3½%.

SELECTION ENDURING FOR 5 YEARS.

Formula : $_nV_x = A_{[x]+n} - P_x \, a_{[x]+n}$.

End of Year.	Age at Entry, 20.	Age at Entry, 30.	Age at Entry, 40.	Age at Entry, 50.	Age at Entry, 60.
1	.30	1.74	2.55	.16	9.39
2	9.56	15.04	21.15	27.47	30.43
3	18.48	27.67	39.75	54.42	68.77
4	27.53	40.63	57.77	80.68	105.30
5	36.46	53.42	76.72	106.59	141.25

SELECT AND ULTIMATE RESERVES—3½%.

SELECTION ENDURING FOR 10 YEARS.

End of Year.	Age at Entry, 20.	Age at Entry, 30.	Age at Entry, 40.	Age at Entry, 50.	Age at Entry, 60.
1	.98	.96	2.89	1.45	6.08
2	8.29	14.27	21.49	28.72	33.62
3	17.23	26.91	40.08	55.63	71.83
4	26.29	39.88	58.10	81.87	108.24
5	35.23	52.68	77.03	107.74	144.07
6	44.15	65.48	95.28	132.92	178.30
7	53.56	78.79	113.88	158.09	211.97
8	62.96	92.11	131.89	183.26	243.82
9	72.36	105.43	150.48	207.73	274.76
10	81.77	118.74	169.08	231.51	303.87

It is not quite satisfactory to use, in conjunction with the $O^{m(5}$ premiums, the Select Functions which have been prepared on the assumption that the Ultimate mortality rates have the first ten years of assurance excluded. The result is that the reserves by the new method do not merge smoothly into the $O^{m(5)}$ reserves; but there has been no time to form special graded Select annuities which would harmonize with the $O^{m(5)}$ Table; and probably the calculations as submitted will be considered sufficiently complete to illustrate the new method of valuation.

There are many other points of interest which spring from the general question here so briefly discussed. One of these only I purpose to touch upon. Let us compare, for age at entry, 30, the amount carried to reserve each year by the new method with the corresponding amounts under *ultimate* reserves. The relative figures and the differences are as follows:

AGE AT ENTRY, 30. NET PREMIUM, ULTIMATE 3½%, 17.39 PER 1000.

End of Year.	3½% Reserve By New Formula.	△	3½% Reserve Ultimate.	△
1	.96	.96	10.18	10.18
2	14.27	13.31	20.93	10.75
3	26.91	12.64	32.20	11.27
4	39.88	12.97	43.46	11.26
5	52.68	12.80	55.24	11.78
6	65.48	12.80	67.53	12.29
7	78.79	13.31	79.82	12.29
8	92.11	13.32	92.62	12.80
9	105.43	13.32	105.43	12.81
10	118.74	13.31	118.74	13.31

The columns of differences show the sums set aside each year by the respective methods. Now the amount carried to reserve is understood to be that portion of the net premium which is not absorbed by current risk. With the exception of the first year, this condition is exactly fulfilled by the Select and Ultimate method, the current risk being met at the Select rates of $q_{[x]+n}$; but by the usual method the true position of the policy is ignored and is replaced by hypothesis.

In the foregoing I have dealt exclusively with the Prospective method of valuation; but the Retrospective method may also be applied so long as the allowance for initial expense, calculated in the manner formerly indicated, receives adequate consideration. The full net premium, less the initial expense allowance, would be accumulated, and claims would be deducted in accordance with the tabular values from the Select Table.

Throughout this contribution terminal reserves only have been considered. In the United States the reserves employed for valuation purposes are "mean" or mid-year, and in the original note to which I now direct attention, mean values only were dealt with, the calculations having been based on Sprague's Select Tables. It need scarcely be said that a method which is satisfactory both in theory and practice for terminal values, must also prove suitable for mid-year valuations; or, for that matter, for valuations on any assumption which may be found necessary in practice.

RÉSUMÉ.

DES RAPPORTS DES FRAIS D'ACQUISITION ET DE LA SÉLECTION AVEC L'ÉVALUATION.

PAR HENRY MOIR.

Il y a ici un sujet qui est d'intérêt international, et qu'on soumet principalement afin d'attirer l'attention à l'évaluation d'après la formule

$$nVx = A_{[x]+n} - P_x \ddot{a}_{[x]+n}$$

Dans cette expression les valeurs de réversion et des rentes viagères sont prises de tables choisies, tandis que la prime pure est prise de la table finale ("Ultimate Table") le taux inférieur de mortalité pendant les premières années ayant été exclu. Les avantages qu'on réclame pour cette formule sont:

1. Elle est basée sur les principes logiques et scientifiques.
2. Elle se conforme aux conditions actuelles.
3. Elle fournit une provision raisonnable pour les frais initiaux.

Cette provision, calculée d'après les récentes tables anglaises de têtes choisies au taux de 3½%, donne environ 1% sur le montant assuré à l'âge de 20, presque 2% à l'âge de 40, et un peu plus que 5% à l'âge de 60 ans.

4. Elle est convenable à toutes espèces de polices.

5. Elle pourvoit une limite convenable, pour les frais qu'on pourrait bien avoir entrepris pour la première année d'assurance.

L'épargne qui vient du taux bas de mortalité pendant les premières années sert directement à compensation pour les frais initiaux.

Les tables de réserves posées par la nouvelle formule, et des provisions qu'elle fait pour les frais d'acquisition sont soumises. Les calculs sont basés sur les nouvelles tables anglaises de têtes choisies au taux d'intérêt à 3½%.

KURZE NOTIZ.

DAS VERHÄLTNISS DER ERSTEN UNKOSTEN UND DER SELECTION ZUR RESERVEBERECHNUNG.

Eine summarische Darstellung.

Von Henry Moir.

Dieser Gegenstand ist von internationalem Interesse, und ist vornehmlich in der Absicht unterbreitet worden, der Methode der Reserveberechnung nach der Formel

$$nVx = A_{[x]+n} - P_x{}^{a}{}_{[x]+n}$$

Beachtung zu verschaffen.

In diesem Ausdrucke werden die Werte der einmaligen Prämie und der Rente-„Select"-Tafeln entnommen, während die Netto-Jahresprämie aus der entsprechenden End-Tafel (Ultimate Table) bestimmt wird, welche die Untersterblichkeit der ersten Versicherungsjahre nicht mit einschliesst. Folgende Vorteile werden für die Formel beansprucht:

1. Sie beruht auf logischen und wissenschaftlichen Grundsätzen.

2. Sie entspricht den Thatsachen, wie sie in der Praxis wirklich vorliegen.

3. Sie gestattet die Ansetzung eines angemessenen Betrages für erste Unkosten.

Dieser unter Zugrundelegung der neuen englischen „Select"-Tafeln mit 3½% Zinsen berechnete Betrag beläuft sich auf ungefähr 1% der Versicherungssumme bei einem Alter von 20, nahezu 2% bei einem Alter von 40, und ein wenig über 5% bei einem Alter von 60 Jahren.

4. Sie lässt sich bei allen Versicherungsarten anwenden.

5. Sie bestimmt in angemessener Weise eine Grenze für die ersten Unkosten, bis zu welcher dieselben unbedenklich ansteigen können.

Die Ersparniss durch Untersterblichkeit in den ersten Versicherungsjahren bildet ohne weiteres einen Aufrechnungsposten gegenüber den ersten Unkosten.

Tabellen, welche die nach der neuen Formel berechneten Reserve-Werte und die für erste Unkosten verfügbaren Beträge enthalten, sind mitunterbreitet. Den Berechnungen liegen die neuen englischen „Select"-Tafeln mit 3½% zu Grunde.

DU CONTRÔLE PAR L'ÉTAT DES ENTREPRISES D'ASSURANCES PRIVÉES.

PAR LOUIS MAINGIE,

Docteur en Sciences physiques et mathématiques, Secrétaire de l'Association des Actuaires Belges, Actuaire de la Compagnie Belge d'Assurances Générales.

Deux questions relatives à cet objet figurent au programme du quatrième Congrès; elles présentent entre elles une telle connexité qu'il paraît difficile de rédiger un rapport qui ne soit pas à la fois une réponse à l'une et à l'autre de ces questions.

On ne peut, en effet, déterminer les limites des pouvoirs de l'autorité en matière de surveillance des entreprises d'assurances sans avoir pris une décision sur divers principes fondamentaux.

Le rapport que l'on va lire touche à ces questions; il n'a pas cependant la prétention d'être complet et cela pour plusieurs raisons.

Tout d'abord, la question est tellement vaste qu'on ne peut, en quelques pages, l'examiner sous toutes ses faces; tout au plus est-il possible, dans le cadre d'un rapport forcément limité, d'en silhouetter quelques aspects. D'autre part, cette question a fait l'objet de travaux importants lors du premier et du second Congrès, et il paraît malaisé, après le travail si documenté de M. Harding, les remarquables rapports de MM. Adan et Le Jeune, l'intéressante note écrite par M. Trefzer pour le Bulletin du Comité permanent, de présenter sur cette question de la surveillance par l'État des entreprises d'assurances, une étude qui ait quelque originalité. A peine reste-t-il quelques glanures à récolter et je ne sais s'il en reste à suffisance pour former une gerbe.

* * *

On l'a fait ressortir, la question de la surveillance des entreprises d'assurances est surtout d'ordre national, bien que présentant certains aspects d'intérêt général.

La nécessité de la résoudre n'est pas aussi impérieuse pour certains pays que pour d'autres, et les circonstances locales devraient avoir une influence sur le mode et l'étendue du contrôle de l'État en matière d'assurances.

Il est une chose à constater: même parmi ceux qui, dans nos précédents congrès, se sont prononcés en faveur de l'intervention de l'autorité, il y a unanimité à affirmer que le contrôle de l'État en matière d'assurances serait inutile si l'éducation du public était suffisante.

Il est certain qu'une entreprise d'assurances sur la vie, dont les finances sont à l'état d'équilibre instable, éprouverait de grandes difficultés à se développer si le public auquel elle s'adresse etait à même d'apprécier la précarité de sa situation financière.

On a dit que partout où il en est ainsi, l'intervention de l'État devient inutile.

On peut déduire de cette constatation ce principe d'application générale: si le contrôle par l'État est parfois nécessaire, il doit être établi de telle façon qu'il puisse servir à l'éducation du public et que l'intervention de l'autorité diminue dans la mesure du perfectionnement de cette éducation.

On peut reconnaître au législateur suisse le mérite de s'être inspiré de considérations de ce genre. Il est certain que la surveillance exercée par le Conseil fédéral a un double but: réprimer certains abus et mettre le public à même de discerner la valeur des entreprises qui le sollicitent. Il est certain que lorsque cette éducation sera parfaite, certaines stipulations actuelles de la loi seront inutiles; le Conseil fédéral n'aura plus à exercer une pression pour obtenir des entreprises d'assurances des modifications dans leur organisation; l'action exercée par l'opinion sera plus efficace qu'une intervention directe du pouvoir.

Mais la direction imprimée à la législation n'est pas la même partout, et il semble, que, au lieu d'éclairer l'assuré sur ses véritables intérêts, au lieu de lui donner le moyen de juger par lui-même de la valeur des entreprises d'assurances, la tendance générale est plutôt de substituer à un régime insuffisant le contrôle de l'État avec toutes les duretés d'un pouvoir discrétionnaire presque absolu.

On peut se demander si ce n'est pas appliquer un remède pire que le mal.

En Allemagne, l'étendue des prérogatives de l'État est presque illimitée. La loi prévoit tout, régle tout, ordonne tout; l'assuré n'a pour ainsi dire plus à s'occuper de la solvabilité de l'organisme auquel il s'adresse; l'autorité a réglé les choses à tel point qu'on se demande comment une entreprise d'assurances pourrait devenir insolvable; elle se charge de la façon la plus absolue des intérêts des assurés, elle veille à ce que des stipulations précises soient respectées quant au placement des réserves, elle s'inquiète de tous les détails de la gestion, avec une minutie, une sévérité, que rien n'explique; elle a, peut-on dire, groupé les entreprises d'assurances en une sorte de cartel, dont la direction appartient à l'«Aufsichtsamt.»

En France, un projet tout récent est au moins aussi absolu que la loi allemande elle-même.

De telles législations répondent-elles à un besoin? Je ne le pense pas. Ni en France, ni en Allemagne, la situation n'est à ce point déplorable, qu'il faille des lois méticuleuses au point de devenir outrancières.

En France, ce sont des faillites retentissantes qui ont amené une réaction contre le régime certainement insuffisant de la loi de 1867. — De plus, il s'y est constitué diverses sociétés, presque toutes mutuelles, dont la plupart sont établies en dépit des règles techniques ou même exploitent sciemment la crédulité publique par des promesses alléchantes et mensongères.

M. Mirman a mis en lumière, dans l'exposé des motifs d'une proposition de loi dont il est l'auteur, les agissements de certaines sociétés auxquelles la mutualité sert d'enseigne et de fructueuse réclame. Il paraît légitime de réprimer une exploitation aussi ingénieuse que malhonnête de la prévoyance, à laquelle il est fait un tort considérable.

Est-ce une raison cependant pour soumettre à toutes les rigueurs d'une législation autoritaire, des organismes qui ne méritent pas ces rigueurs, et ne vaut-il pas mieux adopter une législation qui, tout en mettant dans l'impossibilité d'agir certaines institutions créées dans un seul but d'exploitation, puisse concourir efficacement à l'instruction du public en matière de prévoyance.

* * *

On peut se demander quelle est la légitimité d'une législation en ce qui concerne les entreprises d'assurances?

Sur quoi se fonde-t-on pour les soumettre à un régime spécial?

D'autres entreprises commerciales ne peuvent-elles, en effet, de même qu'une société d'assurance, aboutir à un désastre retentissant, et ceux qui leur ont confié des capitaux ne peuvent-ils être, à un moment donné, tout aussi intéressants que ceux qui ont confié leurs économies à une institution de prévoyance? — La loi doit-elle davantage protéger ces derniers?

Une controverse peut naître à ce sujet. Sans la trancher, on peut cependant faire valoir en faveur d'un régime légal spécial aux entreprises d'assurances diverses raisons qui sont en même temps une réponse à la question suivante:

Est-il possible d'outiller le public et de lui donner une éducation suffisante pour qu'une législation sur les entreprises d'assurances puisse être inutile?

Le contrat d'assurance diffère notablement, quant à son essence, des transactions commerciales ordinaires.

C'est le plus souvent un contrat à long terme dont la technique particulière échappe à la compréhension de la masse; je n'ai pas besoin d'insister sur ce point, pas plus que sur le fait que si l'on peut assez aisément se rendre compte par la lecture d'un bilan de la situation d'une entreprise ordinaire, le poste relatif aux réserves mathématiques empêche de voir nettement cette situation pour une entreprise d'assurances. Les moyens de se rendre compte de l'exactitude des réserves manquent à tous ceux qui n'ont pas en mains les registres de l'entreprise et les outils nécessaires pour une vérification.

Dans ces conditions, l'État ne pourrait se rendre compte lui-même de la situation exacte d'une société d'assurances, s'il n'exigeait pas la production des documents relatifs à l'évaluation des réserves mathématiques et s'il ne contrôlait pas l'exactitude des calculs qui ont servi à en établir la valeur. Et la question se pose de savoir s'il doit se substituer à ceux qui, ayant confié leurs capitaux à des institutions de prévoyance, sont impuissants à procéder par eux-mêmes à une vérification qui seule peut les éclairer efficacement.

Ceci me permet d'élargir le problème.

Si la légitimité de l'intervention de l'État est reconnue pour les entreprises d'assurances privées, elle doit l'être, de par les raisons que je viens d'indiquer, pour toutes institutions qui traitent des opérations à long terme reposant sur une technique spéciale. Il y a lieu en effet de redouter, qu'à raison de son ignorance, la masse soit exploitée dans sa crédulité.

Il existe ainsi tout un domaine où il est malaisé à la généralité d'acquérir une compétence spéciale, d'apprécier la valeur d'engagements différés.

Si, à raison de cette circonstance, on juge qu'une réglementation est nécessaire, je voudrais qu'elle ne se particularisât pas seulement aux entreprises d'assurances, mais qu'elle englobât toutes les institutions de prévoyance, aussi bien les sociétés de secours mutuels et certaines caisses spéciales que les sociétés d'assurances.

Une telle loi aurait un caractère de généralité que n'ont pas les législations actuelles.

De ce qui précède on peut conclure que, si la légitimité de l'intervention de l'État est admise, l'autorité qui exerce la surveillance et le contrôle ne doit pas porter ses investigations au delà de ce que le public lui-même ne peut apercevoir.

Il serait facile de critiquer à ce point de vue les législations existantes. Je pense cependant qu'il est inutile de s'attarder à démontrer

que, sauf peut être en Suisse, on a réglementé abusivement le fonctionnement des entreprises d'assurances. L'autorité s'est octroyé des droits excessifs, alors qu'elle ne devait avoir pour mission que de prévenir ou de réprimer certains abus, du reste bien déterminés.

Une chose, par exemple, dont le public peut parfaitement se rendre compte, c'est la composition de l'actif d'une Compagnie d'assurance, et la façon dont l'évaluation en est faite. Il n'était donc pas nécessaire à mon sens, de limiter d'une façon étroite le champ des placements réservé aux sociétés d'assurances, comme on l'a fait en Allemagne.

Ce sont là des prescriptions qui, sous prétexte de protection envers les assurés, ne peuvent que gêner le développement normal des organismes assureurs.

* * *

L'une des causes qui ont le plus d'influence sur l'évolution de la prévoyance est le développement économique d'un pays. L'un est pour ainsi dire le corollaire de l'autre. On peut me permettre de ne pas insister sur ce point que M. Lembourg met en lumière dans son rapport sur l'assurance en Belgique.

La conséquence est qu'un état économique inférieur a précisément pour effet certains abus. C'est la raison de l'extension rapide, parfois surprenante, de certaines institutions qui prétendent offrir l'assurance à bas prix et qui ne sont le plus souvent que l'exploitation habile des besoins de la prévoyance. On peut être certain que le public ira de lui-même aux combinaisons rationelles lorsqu'il aura le moyen de payer la prévoyance à son prix normal.

A ce point de vue l'intervention de l'État me paraît plus efficace lorsqu'elle assure l'essor économique de la nation que lorsqu'elle tend à apporter au fonctionnement des entreprises d'assurances les restrictions d'une réglementation excessive.

Le législateur ne peut négliger qu'il doit assurer, tout au moins ne pas entraver la répercussion de la prospérité nationale sur le développement des institutions de prévoyance.

* * *

L'une des tendances de la législation relative aux entreprises d'assurance est d'être volontiers protectrice à l'égard des entreprises indigènes.

Sous prétexte de garantir aux assurés la certitude du paiement des indemnités auxquelles ils ont droit, on a édicté diverses mesures dont la plus commune est le dépôt des réserves ou la constitution au profit des assurés d'un droit de gage sur un actif constitué dans le pays.

De telles mesures ont pour conséquence de forcer nombre de Compagnies étrangères à quitter le territoire où de semblables prescriptions sont en vigueur.

De là, une tendance protectionniste, le plus souvent non indiquée ouvertement, de certaines législations. C'est le cas pour la législation allemande dont la conséquence a été l'exode de nombreuses Compagnies étrangères et une protection, voulue ou non, accordée aux Compagnies indigènes, auxquelles le marché national se trouve de fait en grande partie réservé.

Faut-il approuver ces tendances protectionnistes?

La question est complexe et il me paraît difficile de la trancher. MM. Adan et Le Jeune, au Congrès de Londres, M. Trefzer dans la note que j'ai signalée au début de ce rapport, ont protesté contre de telles mesures, qui portent atteinte à l'unité des Compagnies d'assurances,

J'avoue que pour ma part je n'attache pas grande importance à ce principe de l'unité que certains considèrent à l'égal d'un dogme. J'estime, qu'en général, malgré des prescriptions qui ont pour effet d'hypothéquer une partie de son actif au profit d'un groupe d'assurés, l'unité d'une entreprise n'est détruite qu'en cas de mauvaise gestion. Des mesures de conservation sont alors légitimes.

Je crois donc qu'il est préférable de ne pas considérer les organismes d'assurances comme des entités indivisibles, mais plus simplement comme des entreprises commerciales.

C'est à ce point de vue du reste que se pose la question d'une protection à leur accorder.

La question ainsi ramenée, me semble-t-il, sur son véritable terrain, on peut se demander, si les tendances protectionnistes de la législation ne s'appuyent pas sur des raisons sérieuses.

Tout d'abord, il y a lieu de remarquer que les entreprises d'assurances sur la vie deviennent, dans leur mouvement d'extension, de plus en plus internationales.

Pour peu qu'elles aient atteint un certain développement, c'est pour elles une nécessité d'étendre leur action au delà des frontières de leur pays d'origine.

La raison en est dans le fait que la source la plus importante de leurs bénéfices provient de la différence entre le taux d'intérêt auquel elles doivent capitaliser leurs réserves et celui qu'elles réalisent effectivement.

Or, pour que les réserves ne diminuent pas, pour que l'entreprise n'entre pas dans une voie régressive, il faut réaliser une production parfois considérable. Ce but n'est pas toujours facile à atteindre dans les conditions actuelles d'une concurrence souvent âpre.

Ce n'est un secret pour personne que nombre de Compagnies d'assurances absorbent pour la gestion et la recherche des affaires au delà de ce qui est prévu par les tarifs.

C'est la conséquence de la nécessité d'augmenter, tout au moins de maintenir, la production. Une autre conséquence est l'expansion au dehors de l'entreprise elle-même. C'est pour cette raison que l'on voit de grandes Compagnies s'efforcer d'élargir de plus en plus le champ de leur action, et s'imposer dans ce but de lourds sacrifices.

C'est pour cette raison aussi, qu'elles ont une tendance à obtenir que le marché national leur soit réservé. Elles ne l'expriment pas souvent ouvertement, mais cette tendance n'en existe pas moins et c'est peut-être la raison pour laquelle des législations parfois très dures ont été acceptées sans trop de protestations.

Les désagréments d'une surveillance étroite sont aussi la rançon d'un avantage considérable créé par l'éviction de concurrents.

Comme conclusion de ce qui précède, je me permets de reproduire un passage d'un article que j'ai publié dans le *Bulletin de la Prévoyance:* « Les lois de protection donnent un des arguments de fait les plus importants en faveur de la surveillance des entreprises d'assurances privées. Si, dans certains pays, on trouve nécessaire de protéger les entreprises nationales, on peut se demander si les entreprises d'autres pays n'ont pas raison de demander à leurs gouvernements de les soumettre à une surveillance dont un des effets les plus certains est d'évincer des concurrents étrangers en faveur desquels la législation de leur pays crée un privilège.

« Pour ne citer que cet exemple, il serait pour ainsi dire impossible aux Compagnies belges d'assurances sur la vie de traiter, avec des chances

de profit, des opérations en Allemagne. Et l'on voit actuellement en Belgique des compagnies allemandes faire état dans leurs réclames de la surveillance et du contrôle dont elles sont l'objet dans leur pays. Il y a là une situation anormale, et l'on comprendrait que les compagnies belges d'assurances demandassent à leur gouvernement une législation qui les mettrait sur un pied d'égalité avec leurs concurrentes étrangères.

« Que l'on ne tire point de ce que je viens de dire cette conclusion que je suis partisan d'un système de protection des sociétés d'assurances. Je ne veux qu'impartialement indiquer les arguments que l'on peut faire valoir en faveur de deux thèses contraires.»

Mais l'idée de la protection nationale des entreprises d'assurances s'appuie encore sur d'autres considérations.

Nul n'ignore que les conditions de placements de capitaux diffèrent d'un pays à l'autre. Ce fait a pour conséquence que les Compagnies de certains pays où les placements sont plus rémunérateurs peuvent présenter, au public d'autres pays, des tarifs inférieurs à ceux des Compagnies de ces pays.

On peut ainsi se demander s'il y a lieu d'accorder protection aux Compagnies indigènes, ou s'il faut, dans l'intérêt de ceux qui s'assurent, laisser le jeu de la concurrence sortir librement ses effets.

Il me paraît difficile de se prononcer; je suis néanmoins tenté d'écrire avec M. Le Jeune: « Les conflits qui passionnent si vivement les libre-échangistes et les protectionnistes, ne me paraissent pas pouvoir entrer dans le cadre des travaux du Congrès des Actuaires. Je me bornerai donc à dire qu'à mon avis la protection, en tant qu'elle a pour but de favoriser des institutions nationales d'assurance sur la vie par opposition aux institutions étrangères, fait fausse route et sera désavantageuse à la nation.»

Je crois en effet qu'il n'y a rien à gagner à restreindre le champ de la concurrence.

* * *

Il me reste pour remplir le programme que je me suis tracé à effleurer un dernier point: la surveillance par l'État manque son but, si elle ne fait pas participer l'assuré à la surveillance.

A quoi bon en effet prendre en mains les intérêts de ceux qui s'en désintéressent eux-mêmes?

N'est-ce pas diminuer le courant des idées en faveur de la prévoyance que d'en régler outre mesure l'exercice? — C'est pourquoi il me semble nécessaire que l'assuré ait, malgré le contrôle de l'État, intérêt à rechercher si l'entreprise à laquelle il confie ses capitaux offre des garanties suffisantes. C'est aussi la seule façon d'assurer la mission éducatrice que l'œuvre de la surveillance doit se proposer comme but.

* * *

Ai-je besoin de conclure; je pense avoir suffisamment indiqué quelques principes généraux, pour que je me croie dispensé de les présenter en un résumé.

Si, comme le pensait M. Adan, « la pratique de l'assurance ne peut rien gagner à la réciprocité de procédés de coercition, si légitimes que puissent être des mesures qui prennent le caractère de véritables représailles »; il semblerait que la meilleure législation serait celle qui se bornerait à assurer la publicité la plus complète des documents relatifs à la situation des entreprises d'assurances, sans qu'il y ait ingérence trop directe de l'autorité dans leur administration interne.

Toutefois cette autorité qui se proposerait en même temps une

mission de haute éducation en faisant de l'assuré un collaborateur non désintéressé de la surveillance, devrait être armée suffisamment pour empêcher que la gestion d'une entreprise ne la conduise à un désastre.

Elle aurait surtout à empêcher le fonctionnement de certaines entreprises qui se parent du nom de l'assurance et plus souvent de celui de la mutualité pour couvrir certaines opérations qui ont parfois le caractère de la fraude ou qui n'ont le plus souvent de l'assurance que le nom.

Non restreint aux entreprises d'assurances privées, mais étendu au contraire à toutes les institutions fondées sur une technique accessible seulement aux initiés, le rôle de l'État, compris comme nous venons de l'indiquer, serait surtout d'assurer le développement normal de la prévoyance. Malheureusement, cette évolution déjà trop lente est encore trop souvent entravée par une législation abusive, inspirée comme le disait M. Adan "par un esprit d'hostilité latente envers les institutions d'assurance.» Rien cependant ne justifie cette hostilité.

Je ne sais pas si, à tout prendre, la liberté avec ses abus ne vaut pas mieux qu'une législation édictée sous l'empire de telles préoccupations.

ABSTRACT.

THE SUPERVISION AND THE STATE CONTROL OF PRIVATE INSURANCE UNDERTAKINGS.

By Louis Maingie.

I do not assume to offer to this congress a complete report on the State supervision of private insurance undertakings.

I will be content to develop some general principles which it would be desirable to have regarded by the lawmakers of different countries.

The State should interfere only to the extent indicated by the degree of public knowledge in matters of saving for the future, and its duty is to protect the supervision and the control so as to render them the means of an educational work.

In this way the policy-holder could be interested in the supervision, and could co-operate in this supervision in a very effectual way.

There are very serious reasons in favor of State supervision not only of insurance but also, and principally, of the methods for savings. Legislation should not be special, but embrace all institutions dealing in operations whose methods, owing to technicalities, are not understood by the people at large.

It is very hard to express an opinion on the question of protecting, by law, home undertakings. Very good arguments can be advanced on both sides of the question. However, although legislation having the character of reprisals is perfectly legitimate, the development of savings methods has nothing to gain through the prevention of competition. Better, perhaps, liberty with its abuses than restrictive and excessive regulations, made for the purpose of suppressing abuses, but preventing the normal development of provident institutions.

KURZE NOTIZ.

DIE UEBERWACHUNG UND DIE STAATLICHE CONTROLLE VON PRIVAT-VERSICHERUNGS-GESELLSCHAFTEN.

Von Louis Maingie.

Ich habe durchaus nicht die Absicht, dem Congress einen completten Bericht über die Ueberwachung von Privat-Versicherungs-Gesellschaften durch den Staat vorzulegen.

Ich gebe mich damit zufrieden, einige allgemeine Principien zu unterbreiten,

welche von den Gesetzgebern der verschiedenen Länder berücksichtigt werden sollten.

Die Regierung sollte nur in soweit sich einmischen, als der Grad der öffentlichen Kenntnis in Sachen der Vorsorge es erheischt, und es ist ihre Pflicht, die Ueberwachung und Controlle in einer solchen Weise zu übernehmen, dass sie ein Erziehungs-Werk bilden.

Auf diese Art würde der Versicherte sich ebenfalls für die Ueberwachung interessieren und so einen wirksamen Mitarbeiter abgeben.

Es giebt zwingende Gründe zu Gunsten der staatlichen Ueberwachung nicht allein des Versicherungswesens, sondern auch des Gebietes der Vorsorge. Die Gesetzgebung sollte nicht in Einzelheiten eingehen, sondern alle Institutionen umfassen, welche ihre Operationen mit einer Special-Technik in solch einer Weise durchführen, dass sie der grossen Masse unverständlich sind.

Es ist schwer, über die Frage eines gesetzlichen Schutzes einheimischer Unternehmungen eine Meinung abzugeben. Es könnten sehr gute Argumente nach zwei Seiten hin vorgebracht werden. Obgleich, indessen, eine Gesetzgebung mit der Absicht einer Ausbeutung durchaus gerechtfertigt wäre, so sollte die Entwickelung der Vorsorge doch durch Ausstossen von Konkurrenz keinen Gewinn zu erzielen suchen.

Freiheit mit ihren Missbräuchen ist vielleicht besser, als einschränkende Vorschriften und äusserst scharfe Verordnungen, die zwar die Absicht, Missbräuche zu unterdrücken, haben, aber die normale Entwickelung vorsorglicher Institute lähmen.

DIE STAATLICHE KONTROLLE VON LEBENSVERS.-GESELLSCHAFTEN IN DEUTSCHLAND.

JURISTISCHE UND WIRTSCHAFTLICHE GRUNDSÄTZE.

Von Dr. Phil. et Jur. Alfred Manes (Berlin),
Generalsekretär des Deutschen Vereins für Versicherungs-Wissenschaft.

I. Einleitung.

Die für den 4. internationalen versicherungs-wissenschaftlichen Kongress zur Erörterung gestellten Fragen nach der Form der Staatsaufsicht und den bei ihr zu beachtenden Grundsätzen haben für das Gebiet des deutschen Reiches ihre endgiltige Beantwortung gefunden in dem Gesetz über die privaten Versicherungs-Unternehmungen vom 12. Mai 1901.

Es erscheint daher angebracht, eine übersichtliche systematische Darstellung des für den Rechtsunkundigen, insbesondere aber auch für den Ausländer, nicht leicht verständlichen Gesetzesinhalts zu geben; und zwar sollen zunächst die juristischen und wirtschaftlichen Teile dieses Gesetzes behandelt werden, während die technischen Fragen in besonderen Aufsätzen durch andere Autoren zur Darstellung gelangen.

Dass an dieser Stelle die für ausländische Gesellschaften wichtigen Punkte besonders hervorgehoben, diejenigen aber, welche lediglich für inländische Unternehmungen in Betracht kommen, mehr oder minder kurz gestreift werden, dürfte dem Zweck und Leserkreise dieses Aufsatzes entsprechen.

Anmerkung: Ich lege den folgenden Ausführungen meine Gesetzesausgabe (erschienen 1902 bei Hirschfeld in Leipzig) zu Grunde und meinen Aufsatz „Die wirtschaftliche Bedeutung der deutschen Privatversicherungs-Gesetzgebung“ in „Conrad's Jahrbüchern für Nationalökonomie und Statistik“ (1902, Band 78). Siehe ferner: *Samwer,* “ The Business Management of Foreign Life Insurance Companies according to German Imperial Law ” in Journal of the Institute of Actuaries, Bd. 36, 1902, und Abschnitt VI des Kommentars von *v. Knebel-Doeberitz,* Berlin 1902.

II. Allgemeines.

Erst seit dem 1. Januar 1902, dem Tage des Inkrafttretens des neuen Gesetzes, gilt innerhalb der 26 Bundesstaaten des deutschen Reichs in den wesentlichsten Punkten ein einheitliches Recht für den Geschäftsbetrieb der Lebensversicherungs-Gesellschaften. Vorher gab es beinahe noch mehr Rechte als Staaten, da oft innerhalb desselben Staates kein einheitliches Recht galt.

Dass eine Vereinfachung des so verwickelten Rechtszustandes durch das neue Gesetz vom 12. Mai 1901 herbeigeführt worden ist, ist schon ein so enormer, für inländische ebenso wie für ausländische Unternehmungen fühlbarer Fortschritt, dass man über die Tatsache der überaus günstigen Wirkung des Gesetzes keinerlei Zweifel hegen kann, sondern höchstens über deren Grad.

Will ein Ausländer Kritik üben an dem Gesetze, so muss er vor allen Dingen zwei Punkte beachten. Einmal ist es unmöglich für den Gesetzgeber, historisch Gewordenes und durch die Eigentümlichkeit einer Nation Bedingtes einer, wenn auch noch so idealen, Theorie zuliebe

unbeachtet zu lassen, und weiterhin ist es unmöglich, wenn überhaupt eine Einmischung des Gesetzgebers in den Betrieb des Versicherungsgewerbes stattfindet, inländische und ausländische Unternehmungen in jeder Beziehung vollkommen gleich zu behandeln; denn Gleichheit hierin könnte zur höchsten Ungleichheit werden. Das gilt insbesondere für den Fall, dass, wie in Deutschland, das Konzessionsprincip für die Lebensversicherungs-Anstalten eingeführt ist, und dem Aufsichtsamt die Aufgabe zugewiesen ist, eine Art Schutzanstalt für die Allgemeinheit zu sein, von welcher angenommen wird, dass sie zur Kontrolle der Versicherungs-Gesellschaften nicht willig oder nicht fähig sei.

Diese Betrachtung führt uns bereits zur Erörterung des Gesetzes im Einzelnen.

III. Das Konzessionsprinzip und seine Rechtfertigung.

Wie ein vollständiger Ausgleich der Meinungen über die beste Handels- und Zollpolitik ausgeschlossen ist, weil es hier nichts absolut bestes giebt, sondern jede Form der Politik nur relativ gut und daher auch stets relativ schlecht sein wird, so ist ein Ausgleich der widerstrebenden Meinungen, sei es unter den Inländern, sei es zwischen Inländern und Ausländern, über die beste Form des Systems, nach welchem der Versicherungsbetrieb zu gestatten ist, unmöglich. Vom objektiven Standpunkt aus können wir hier unserer Auffassung Ausdruck geben, dass die Grundsätze des Gesetzes, insbesondere was die Zulassung zum Geschäftsbetrieb betrifft, im allgemeinen die richtige Mitte innehalten zwischen den sich so oft diametral gegenüberstehenden Interessen der verschiedenen für das Versicherungswesen in Betracht kommenden Personenkreise.

Wir können zur Rechtfertigung des für das Deutsche Reich eingeführten Konzessionsprinzips nichts besseres anführen als die Worte, welche der Gesetzgeber in seiner Begründung des Gesetzes selbst ausgesprochen hat. Hier heisst es:

„Wollte man von der Annahme ausgehen, dass der Betrieb der Versicherungsgeschäfte auf eine Linie zu stellen sei mit jedem Gewerbebetriebe, dem gegenüber durch die Gewerbeordnung ein freies Gewährenlassen gesichert ist, dass es dem versicherungssuchenden Publikum lediglich selbst überlassen werden könne, seine Interessen im Geschäftsverkehre mit den Versicherungsanstalten zu wahren und sich durch eigene Wachsamkeit vor Schaden zu schützen, und dass der freie Wettbewerb unter den Anstalten mit hinreichender Stärke in dem Sinne wirken werde, schwindelhafte Unternehmungen auszumerzen und unsolides Geschäftsgebahren auf die Dauer unmöglich zu machen, dann allerdings würde es einer besonderen staatlichen Ueberwachung des Versicherungsbetriebs nicht bedürfen, und dann würde die Gesetzgebung sich darauf beschränken können, für den Beginn des Geschäftsbetriebs die Erfüllung bestimmter äusserer Erfordernisse, z. B. hinsichtlich der Verfassung einer Gesellschaft, des Vorhandenseins gewisser finanzieller Garantiemittel u. s. w., in Form sogenannter *Normativbestimmungen* vorzuschreiben. Würde dann überdies etwa noch die Hinterlegung einer bestimmten Summe als Kaution verlangt und eine jährliche öffentliche Klarlegung der Betriebsverhältnisse und der Vermögenslage der Anstalten gefordert, so wäre damit zum Schutze des Publikums schon ein Übriges getan.

Dem Gesetze liegt die entgegengesetzte Auffassung zu Grunde, nämlich die, dass das öffentliche Interesse an einer gedeihlichen und soliden Entwickelung des Versicherungswesens in besonders hohem

Grade beteiligt ist und dem Staate die Pflicht besonderer Fürsorge auf diesem Gebiete auferlegt. Massgebend hierfür ist insbesondere einerseits die Rücksicht auf die *grosse volkswirtschaftliche, soziale und ethische Bedeutung des Versicherungswesens,* andererseits auf die Gefahr schwerster Schädigung des Volkswohls, die von einem Missbrauche des Versicherungswesens droht und um so näher liegt, als auf diesem Gebiete des Wirtschafts- und Verkehrslebens *selbst der sorgsame und verständige Bürger ohne Hilfe von anderer Seite zu eigener zuverlässiger Beurteilung der Anstalten, denen er sich anvertrauen muss, regelmässig nicht im stande ist.*

Es ist nicht bloss die Höhe der dem Versicherungszwecke gewidmeten und der durch die Versicherung gewährleisteten Summen, welche die wichtige Rolle des Versicherungswesens im Wirtschaftsleben bedingt; die gesamte Höhe der in Deutschland in Versicherung gegebenen Werte übersteigt die Summe von 150 Milliarden Mark. Vor allem müssen auch *die eigenartigen, für den Volkswohlstand und das ethische Volksleben bedeutsamen Funktionen* ins Auge gefasst werden, durch welche sich das Versicherungswesen von den sonstigen Wirtschaftszweigen wesentlich abhebt. Wie der durch die Versicherung ermöglichte Schutz des Einzelnen gegen die vernichtenden und zerrüttenden Wirkungen elementarer Schäden eine wichtige volkswirtschaftliche und zugleich kulturelle Errungenschaft bildet, so ist die durch die Lebensversicherung zu erreichende Fürsorge der Versicherungsnehmer für die Zukunft ihrer Familienangehörigen nicht bloss eine für letztere segensreiche Betätigung des Familiensinnes und der Familienpflichten, sondern auch für den Versorgenden selbst ein Mittel, sich von drückender Sorge für die Zukunft zu befreien und sich für die Anforderungen der Gegenwart Mut und Schaffensfreudigkeit zu sichern. Unter diesen Umständen ist es bei der dem deutschen Volke eigenen Auffassung von den *Aufgaben des Staates* unmöglich, dem Staate dem Versicherungswesen gegenüber kein anderes Interesse und keine anderen Pflichten zuzusprechen, als gegenüber einer beliebigen, auf Erzeugung und Bereitstellung materieller Güter für den Volksbedarf gerichteten freien Gewerbethätigkeit.

Dazu kommt, dass der *Versicherungsbetrieb* mehr als irgend ein anderer Wirtschaftszweig *auf das Vertrauen der Bevölkerung angewiesen* ist. ... Wird das Vertrauen getäuscht, so leidet das ganze Versicherungswesen Einbusse. ...

Dass der Einzelne in der Lage wäre, sich durch unrichtige Prüfung ein zutreffendes Urteil zu bilden, welcher Unternehmung er sein Vertrauen schenken dürfe, lässt sich im allgemeinen nicht annehmen. ...

Von vielen Seiten wird ein wichtiger, aber auch ausreichender Schutz des Publikums in dem *System der Publizität* erblickt, wonach gesetzlich dafür gesorgt wird, dass der Geschäftsplan, nach dem eine Anstalt das Versicherungsgeschäft betreiben will, und ebenso auch alljährlich die Betriebsergebnisse durch ausführliche Rechenschaftslegung (Betriebsrechnung, Vermögensausweis, Jahresbericht) öffentlich dargelegt werden. Hierdurch werde, so meint man, in weitestem Masze die öffentliche Kritik der Anstalten und ihrer Geschäftsgebahrungen ermöglicht und angeregt, unsolidem Treiben gesteuert und dem versicherungsuchenden Publikum ein Mittel sicherer Orientierung geboten.

Dass die Publizität in diesem Sinne in der Tat ein wichtiger Faktor ist, um das Versicherungswesen auf gesunden Bahnen zu erhalten, und dass sie namentlich in Verbindung mit einer sachgemäss geübten Staatsaufsicht in hohem Grade segensreich wirken kann, ist nicht zu

bestreiten; dass sie aber für sich allein zur Sicherung jenes Zweckes ausreicht, muss füglich bezweifelt werden. Selbst wenn durch die Veröffentlichungen der Anstalten alle diejenigen Daten geliefert würden, welche erforderlich sind, um den Sachverständigen ein Urteil über Leistungsfähigkeit und Solidität eines Unternehmens zu ermöglichen, so ist eine auf den Grund gehende Prüfung der Gesamtverhältnisse einer grösseren Anstalt eine äusserst mühsame und zeitraubende Arbeit, und es steht sehr dahin, ob solche Prüfungen von interessierter, gewissenhafter Seite in ausreichendem Masze zur Aufklärung der öffentlichen Meinung zu erwarten sind. Derartigen nur der Sache dienenden Beurteilungen stehen aber jederzeit solche gegenüber, die unter dem Scheine selbstloser Objektivität im Dienste bestimmter einseitiger Interessen die Verkleinerung der einen, die reklamenhafte Anpreisung der anderen Anstalt bezweckt. ...

Dazu kommt aber, dass die in üblicher Weise erfolgenden jährlichen Veröffentlichungen der Versicherungsanstalten auch dem gewiegtesten Fachmann doch nur ein sehr bedingtes Urteil über die Vertrauenswürdigkeit einer Anstalt gestatten. ...

So wird man aus mannigfachen Gründen, wenn anders nicht überhaupt auf besondere staatliche Fürsorge für eine gedeihliche, solide Entwickelung des Versicherungswesens und auf einen besonderen Schutz der Versicherten verzichtet werden soll, zu dem *System einer materiellen Beaufsichtigung der Versicherungsunternehmungen* hingeführt, wie sie der Entwurf vorsieht. Die *Aufsicht* soll sich hiernach *nicht lediglich in formaler Richtung* bethätigen, indem sie die Einhaltung der durch Gesetz und Satzungen gegebenen Bestimmungen überwacht. *Die Aufsicht soll vielmehr durch Prüfungen und Entscheidungen materieller Art das Entstehen solcher Anstalten hindern, welche von vornherein des Vertrauens unwürdig erscheinen, bei allen zugelassenen Anstalten fortlaufend den gesamten Geschäftsbetrieb im Auge behalten und darüber wachen, dass von dem genehmigten Geschäftsplane nicht abgewichen wird, in der Geschäftsführung nicht Missbräuche Platz greifen,* welche die Versicherten gefährden und aus einem zu gemeinnütziger Wirksamkeit bestimmten Institut ein gemeingefährliches machen würden. Da, wo veränderte Verhältnisse (z. B. Änderung der Gefahrenverhältnisse, des Zinsfusses) es nötig machen, soll die Aufsicht dahin wirken, dass durch Umgestaltung der technischen und finanziellen Grundlagen des Geschäfts der Bestand und die Leistungsfähigkeit der Anstalt erhalten bleiben, und endlich in Fällen, wo dennoch ein Zusammenbruch nicht abzuwenden ist, dafür sorgen, dass dem Geschäftsbetriebe rechtzeitig ein Ziel gesetzt wird und die Abwickelung der Geschäfte ohne willkürliche Beschädigungen oder Bevorzugungen Einzelner unter gleichmässiger Wahrung der Interessen aller Beteiligten erfolgt."

Es ist nicht ohne Bedeutung hervorzuheben, dass auch die ausländischen Staaten, welche dasselbe System eingeführt haben, gute Erfahrungen damit aufzuweisen haben. So Österreich, die Schweiz, der Staat New York u. a. m. Die zahlreichen Entwürfe, welche in anderen Staaten vorliegen, für Ungarn, Schweden, Norwegen, Italien, lassen ebenfalls sämtlich erkennen, dass man die Staatsaufsicht für das beste, wenn auch zweifelsohne noch sehr verbesserungsfähige System ansieht.

IV. Die Behandlung der ausländischen Gesellschaften im allgemeinen.

Grundsätzlich gilt das gleiche Recht für inländische wie für ausländische Gesellschaften. Die zunächst für inländische Anstalten berech-

neten Vorschriften des Gesetzes sollen auf die ausländischen „entsprechende Anwendung" finden (§ 85). Es bestehen jedoch, wenn auch der Zahl nach nur geringe, so doch ihrer Bedeutung nach erhebliche besonders festgesetzte Ausnahmen.

Diese Ausnahmen in der Behandlung kommen aber nicht zum Vorschein, wenn eine ausländische Gesellschaft einmal zugelassen ist, sondern fast ausnahmslos bei dem Akt der Zulassung selbst und bei einem eventuellen Widerruf. Das ist sehr erklärlich, durchaus natürlich und notwendig. Denn wenn einmal der Grundsatz, dass eine inländische Aufsichtsbehörde eine gewisse Verantwortung für den Betrieb der im Inland tätigen Versicherungsanstalten hat, anerkannt ist, so muss diese einem Unternehmen gegenüber, welches ausserhalb der Grenzen des Inlands seinen eigentlichen Sitz hat, dessen volle Tätigkeit sie also aus staatsrechtlichen oder völkerrechtlichen Gründen zu überwachen ausser Stande ist, vorsichtiger sein, als einem Unternehmen gegenüber, dessen gesamte Tätigkeit mehr oder minder ausschliesslich im Inlande sich abspielt. Ein Versicherungsunternehmen ist eben, wie *v. Knebel* sagt, „nicht ein Konglomerat, sondern ein Organismus, ein zwar aus vielen Teilen bestehendes aber einheitliches Ganzes, aus dem sich nicht beliebig das Eine oder Andere herausnehmen lässt." Die Zerlegung einer ausländischen Unternehmung in einen inländischen oder ausländischen Teil lässt sich daher nicht durchführen, ebensowenig aber die Überwachung der gesamten Tätigkeit eines ausländischen Unternehmens. Man muss daher zu Kompromissen greifen. Welchen Weg der deutsche Gesetzgeber im Einzelnen gewählt hat, haben wir nunmehr zu betrachten. Wir gehen bei dieser Darstellung von den für die inländischen Unternehmungen geltenden Bestimmungen aus, da diese die feste Grundlage sind, um zu ermitteln, was als die „entsprechenden" Normen für die ausländischen zu gelten hat.

V. Die Zulassung und ihre Voraussetzungen.

Alle Privatunternehmungen, welche den Betrieb von Versicherungs-Geschäften zum Gegenstand haben (§ 1) unterliegen den Bestimmungen über die Erlaubnis zum Geschäftsbetrieb (§ 4). Die inländischen Gesellschaften bedürfen der Erlaubnis des Kaiserlichen Aufsichtsamtes für Privatversicherung (§ 4). Nur in dem Fall, dass inländische Anstalten sich auf einen einzelnen Bundesstaat beschränken, ist statt des Kaiserlichen Amtes die Behörde des Bundesstaates regelmässig zuständig (§§ 2, 3). Ausländische Unternehmungen müssen die Erlaubnis des Reichskanzlers erhalten (§ 86). Der Betrieb des Geschäftes von Ausländern lediglich im Korrespondenzwege fällt jedoch nicht unter das Gesetz; nur auf den im Inlande durch Vertreter, Bevollmächtigte, Agenten oder sonstige Vermittler erfolgenden Betrieb findet die Konzessionspflicht Anwendung (§ 85).

Um die Konzession zu erhalten, ist ein Antrag auf Erteilung derselben einzureichen, von den inländischen beim Aufsichtsamt, von den ausländischen beim Reichskanzler. Alle Bewerber müssen diesem Antrage einen Geschäftsplan beifügen, in welchem sich eine so eingehende Darstellung der Einrichtungen des Unternehmens findet, dass die Zulassungsbehörde in der Lage ist, sich die Überzeugung davon zu verschaffen, dass die Gesellschaft hinreichend und dauernd leistungsfähig genug zur Erfüllung der von ihr beabsichtigten Verträge ist. Über Zweck und Verfassung der Gesellschaft und das räumliche Gebiet des beabsichtigten Betriebs muss dieser Plan Auskunft geben. Der räumliche Geschäftsbetrieb kann sich nämlich entweder auf das ganze Reichsgebiet erstrecken und dieser, der Regelfall, wird hier allein ins Auge

gefasst, oder aber nur auf einen oder mehrere Bundesstaaten. Ausländische Anstalten unterstehen aber auch, wenn sie nur in einem einzigen Bundesstaat das Versicherungsgeschäft betreiben, dem kaiserlichen Aufsichtsamte (§ 91, Abs. 1).

Als Bestandteile des Geschäftsplanes sind mit einzureichen: der Gesellschaftsvertrag, auf welchem das Unternehmen beruht, die allgemeinen Versicherungsbedingungen und die technischen Geschäftsunterlagen, bei Gegenseitigkeitsvereinen auch die Satzung (§ 4).

Der Inhalt des Geschäftsplanes ist genau vorgeschrieben. Er hat folgendes zu enthalten (§ 11):

Die von der Gesellschaft angenommenen Tarife, die vollständige Darstellung der Grundsätze für die Berechnung der Prämien und der Prämien-Reserve, insbesondere den anzuwendenden Zinsfuss und die Höhe des Zuschlags zur Netto-Prämie, die Angabe „ob und in welchem Masze bei der Berechnung der Prämien-Reserve eine Methode angewandt werden soll, nach welcher anfänglich nicht die volle Prämien-Reserve zurückgestellt wird“ (Zillmer-Methode), die als Grundlage der Berechnungen dienenden Wahrscheinlichkeitstafeln insbesondere über die Sterblichkeit, die Invaliditäts- und Krankheitsgefahr. Weiter wird die Vorlegung der zur Berechnung der Prämie und der Prämien-Reserve dienenden Formeln für jede Versicherungsart verlangt; jede Formel ist durch ein Zahlenbeispiel zu erläutern. Schliesslich ist, falls Versicherungen mit erhöhter Prämie übernommen werden, die Klarlegung der Grundsätze notwendig, in welcher Weise hinsichtlich der Bildung der Prämien-Reserve verfahren werden soll (§ 11).

Auch darüber, was im Gesellschaftsvertrag bezw. in der Satzung stehen muss, giebt das Gesetz Vorschriften.

Gefordert werden zum Beispiel:

die Angabe der einzelnen zu betreibenden Versicherungszweige;
die Grundsätze für die Anlegung des Vermögens;
die Klarlegung, ob nur direkte oder zugleich auch Rückversicherung betrieben wird (§ 8, Abs. 1 u. 2) etc.

Es ist oben bereits hervorgehoben worden, dass die allgemeinen Versicherungsbedingungen beim Nachsuchen der Konzession mit einzureichen sind. Das Gesetz schreibt nun vor, welche Bestimmungen in diesen allgemeinen Versicherungsbedingungen bei inländischen wie bei ausländischen Gesellschaften getroffen sein sollen (§ 9). Nach dem Wortlaut des Gesetzes sollen folgende Bestimmungen getroffen sein:

1. Über die Ereignisse, bei deren Eintritte der Versicherer zu einer Leistung verpflichtet ist, und über die Fälle, in denen aus besonderen Gründen diese Verpflichtung ausgeschlossen oder aufgehoben sein soll (wegen unrichtiger Angaben im Antrage, wegen Änderungen während der Vertragsdauer u. s. w.);
2. über die Art, den Umfang und die Fälligkeit der dem Versicherer obliegenden Leistungen;
3. über die Feststellung und Leistung des vom Versicherten an den Versicherer zu entrichtenden Entgelts und über die Rechtsfolgen eines Verzugs in der Entrichtung des Entgelts;
4. über die Dauer, insbesondere eine stillschweigende Verlängerung, über die Kündigung sowie über die sonstige gänzliche oder teilweise Aufhebung des Versicherungs-Vertrags und die Verpflichtungen des Versicherers in den Fällen der letzteren Art (Storni, Rückkauf, Umwandlung der Versicherung, Reduktion und dergleichen);

5. über den Verlust des Anspruchs aus dem Versicherungsvertrag in Folge der Versäumung von Fristen;

6. über das Verfahren im Falle von Streitigkeiten aus dem Versicherungsvertrag, über das zuständige Gericht und die Bestellung eines Schiedsgerichts;

7. über die Grundsätze und Maszstäbe, nach denen die Versicherten an den Überschüssen Teil nehmen;

8. bei Lebensversicherungen über die Voraussetzungen und den Umfang von Vorauszahlungen oder Darlehen auf Versicherungsscheine (Policen).

Die Zulassung der *inländischen* Gesellschaften *muss* erfolgen, wenn nicht ganz bestimmte Gründe zur Konzessionsverweigerung vorliegen. Als solche führt das Gesetz an: gesetzwidrige Vorschriften, unzureichende finanzielle Sicherheit einer Anstalt, ungenügende Wahrung der Interessen der Versicherten oder Verletzung der guten Sitten (§ 7). Weitere Voraussetzung für die Zulassung inländischer Lebensversicherungs-Gesellschaften ist, dass sie die Rechtsform der Aktien-Gesellschaft haben, wie sie das deutsche Handelsgesetzbuch bestimmt, oder das der Versicherungsvereine auf Gegenseitigkeit, wie sie das Versicherungs-Gesetz selbst ausführlich regelt (§ 6). Auf ausländische Anstalten kann diese Bestimmung natürlich nicht strikte Anwendung finden, so dass im Hinblick auf die Unternehmungsform der deutsche Gesetzgeber den Ausländern Rechte gewährt, welche er den Inländern gegenüber versagt.

Der Einreichung des Zulassungs-Antrages mit den eben angeführten Beilagen folgt eine mündliche Beratung, der regelmässig ein schriftliches Gutachten zu Grunde liegen wird (§ 73). An der mündlichen Beratung nehmen drei Mitglieder des Aufsichtsamtes und zwei des Beirates teil (§ 73, Abs. 1). Bevor eine Ablehnung der Zulassung ausgesprochen wird, sind Vertreter der beteiligten Unternehmungen zu hören und auf ihren Antrag auch zur mündlichen Verhandlung zu laden (§ 73, Abs. 4). Die Ablehnung ist mit Gründen zu versehen. Bevor dieses förmliche Verfahren jedoch eingeleitet wird, kann der Präsident des Amtes einen ablehnenden Vorbescheid ergehen lassen. Begnügt sich der Abgewiesene hiermit nicht, so kann er binnen zwei Wochen auf das eben geschilderte Verfahren dringen (§ 73, Abs. 6). Auch gegen die im förmlichen Verfahren erlassene Entscheidung ist ein Rechtsmittel, der Rekurs, zulässig (§ 74).

Während aber bei den inländischen Unternehmungen das Aufsichtsamt als begutachtende und zugleich entscheidende Behörde in Betracht kommt, ist dieses im Verhältnisse zu ausländischen Unternehmungen nur eine begutachtende Behörde, während die Entscheidung ausschliesslich Sache des Reichskanzlers ist (§ 86), gegen dessen Entscheidung zudem kein Rechtsmittel möglich ist. Verpflichtet zur Zulassung ist der Reichskanzler in keinem Falle. *Möglich* ist die Zulassung dem Reichskanzler nur dann, wenn folgende Bedingungen erfüllt sind:

1. der Beirat muss gehört worden sein;

2. das Aufsichtsamt muss hiernach ein Gutachten dahin abgegeben haben, dass keiner der Gründe vorliegt, welche eine Konzessionsverweigerung für inländische Gesellschaften begründen würde;

3. die ausländische Unternehmung muss den Nachweis führen, dass sie in ihrer Heimat unter ihrem Namen Rechte erwerben und Verbindlichkeiten eingehen, vor Gericht klagen und verklagt werden kann;

4. die Unternehmung muss sich verpflichten, innerhalb des Deutschen Reichs eine Niederlassung zu erhalten und einen Hauptbevollmächtigten zu bestellen mit Wohnsitz im Reichsgebiet (§ 86).

5. Bei jeder Zulassung einer ausländischen Gesellschaft wird naturgemäss die Erlaubnis von der Stellung einer Kaution abhängig gemacht, welche auch von inländischen Gesellschaften verlangt werden kann (§ 7, Abs. 2). Eine weitere obligatorische Sicherheitsleistung besteht darin, dass der Prämienreservefonds für die im Inlande abgeschlossenen Versicherungen nach näherer Bestimmung des Aufsichtsamtes in der Weise festzulegen ist, dass nur mit Genehmigung des Amtes darüber verfügt werden kann (§ 90, Abs. 2).

Sind alle diese Bedingungen erfüllt, so *kann* der Reichskanzler das ausländische Unternehmen zulassen, verpflichtet hierzu ist er nicht. Er kann also auch selbst, wenn alle diese Bedingungen erfüllt sind, die Zulassung nach freiem Ermessen entweder ganz verweigern, oder aber teilweise beschränken, insbesondere die ausländische Gesellschaft nicht für den Umfang des ganzen Reiches, sondern für einzelne Teile desselben zulassen.

Die zugelassenen Unternehmungen dürfen Versicherungs-Verträge im Inlande nur durch ihre im Inland wohnenden Bevollmächtigten abschliessen (§ 87).

Der Ort der Niederlassung im Deutschen Reich ist absolut massgebend für die Zuständigkeit des Gerichtes in allen Klagesachen, die aus dem inländischen Versicherungsgeschäft gegen die Unternehmung entstehen (§ 89).

Inländische Unternehmungen sind — falls sie nicht selbst anderes beantragen — durch Erteilung der Erlaubnis ohne Beschränkung hinsichtlich Zeit oder Raum für das Gebiet des ganzen Reiches zugelassen (§ 5). Bei ausländischen entscheidet auch hier das freie Ermessen des Reichskanzlers.

Nach dieser Darstellung dürfte es scheinen, als ob der Gesetzgeber mit einer Art Misstrauen gegen ausländische Versicherungs-Unternehmungen vorgegangen sei.

Allein dieses ist eine falsche Auffassung. Es handelt sich im wesentlichen in dem Gesetz um nichts anderes, als um die Formulierung der im Völkerrecht ausnahmslos anerkannten Grundsätze der Reziprozität und Retorsion. Der Reichskanzler hat freies Ermessen, aber erst dann, wenn ein gesetzlich vorgeschriebenes Verfahren, unabhängig vom Reichskanzler, stattgefunden hat, und wenn dieses Verfahren zu einem Gutachten des Aufsichtsamtes geführt hat, in welchem die Übereinstimmung mit den auch für inländische Gesellschaften vorgeschriebenen gesetzlichen Anordnungen ausgesprochen ist. Liegt ein solches Gutachten der sachverständigen Fachbehörde vor, dann wird der Reichskanzler, wenn die deutschen Gesellschaften im Auslande wie die heimischen Gesellschaften behandelt werden, aus naheliegenden Gründen sein freies Ermessen nur milde walten lassen. Völkerrechtliche Verträge können wohl das freie Ermessen des Reichskanzlers, nicht aber das Verfahren, welches dem Ermessen voranzugehen hat, einschränken.

Aus dem Gesetze erhellt klar, dass die ausländischen Gesellschaften es in der Hand haben, in Deutschland eine Behandlung zu erlangen ganz ähnlich derjenigen, welche den inländischen gegenüber angewandt wird, nämlich dann, wenn sie die vorgeschriebenen Bedingungen erfüllen, welche für sie im Grunde genommen durchaus nicht strenger sind als für inländische. Halten sie dies nicht für nötig, sind sie etwa der

Ansicht, dass die deutschen Staatsbehörden einer fremden Gesellschaft mehr Vertrauen schenken sollen, als einer deutschen, und erfüllen sie aus diesem Grunde nicht die wohlerwogenen Bedingungen, so darf der Reichskanzler trotz seines freien Ermessens sie nicht zulassen, weil eben der Versicherungsbeirat und das Aufsichtsamt nicht die Erfüllung der vorgeschriebenen Bedingungen festzustellen in der Lage sind. Denn auch der Reichskanzler untersteht dem Gesetz.

Im Gegensatz zu anderen Berufskreisen haben die deutschen Versicherungs-Gesellschaften bei der Beratung der Gesetzentwürfe möglichstes Entgegenkommen gegen die Ausländer verlangt, während der Gesetzgeber hier eine ziemlich weitgehende Vorsicht anzuwenden geneigt war. So enthielt beispielsweise der Regierungsentwurf ursprünglich die Bestimmung, dass die Hälfte der Prämien-Reserve für die in Deutschland geschlossenen Versicherungen ausländischer Gesellschaften in verbrieften Forderungen gegen das Reich oder einen Bundesstaat anzulegen sei, eine Vorschrift, welche sich im wesentlichen an die früher in Preussen geltenden Grundsätze angeschlossen hätte. Die Reichstags-Kommission hat, veranlasst durch die energische Forderung der deutschen Versicherer, um die Einführung reciproker Massregeln zu vermeiden, diese Bestimmung gestrichen.

Ich glaube nicht, dass die den ausländischen Gesellschaften gegenüber getroffenen Bestimmungen in der Absicht gegeben worden sind, um eine Art Protektionismus auszuüben — denn diesen bedarf die deutsche Lebensversicherung durchaus nicht und verlangt ihn nicht — sondern einzig und allein aus dem Gefühle einer hohen Verantwortlichkeit dem inländischen, versicherten Publikum gegenüber; denn wie könnte eine deutsche Behörde, welche eine deutsche Gesellschaft nur bei Erfüllung genauer Vorschriften zulassen darf, etwa ohne eingehende Nachweise und Prüfungen eine ausländische Gesellschaft zulassen, welche in ihrem Heimatstaat womöglich gar keinen Zulassungsbedingungen unterworfen ist?

VI. Die Verhältnisse zwischen Gesellschaften und Aufsichtsbehörde nach der Zulassung.

Nach ihrer Zulassung unterstehen die ausländischen Unternehmungen nun ebenso wie die inländischen dem Aufsichtsamte, und es finden alle Vorschriften des Gesetzes dieselbe Anwendung auf das ausländische, wie auf das inländische Unternehmen (§ 91, Abs. 1). Die Zulassung wird von der Aufsichtsbehörde amtlich bekannt gemacht; bei ausländischen Gesellschaften unter Benennung der Hauptbevollmächtigten. Es hat alsdann die Anmeldung zum Handelsregister zu erfolgen (§ 30).

Eine Folge des bundesstaatlichen Charakters des Deutschen Reichs ist die weitere Vorschrift, dass der Vorstand jeder Versicherungs-Unternehmung — abgesehen von solchen, welche nur in *einem* Bundesstaat Geschäft betreibt — den Zentralbehörden jedes von ihr frequentierten Bundesstaates Anzeige von dem Betriebsbeginn zu machen hat (§ 115, Abs. 1). Die Zentralbehörde jedes Bundesstaates kann weiterhin verlangen, dass für ihren Staat, falls nicht etwa gerade hier die Unternehmung ihren Sitz hat, ein besonderer Hauptbevollmächtigter bestellt wird. Voraussetzung hierbei ist jedoch ein verhältnissmässig grosser Betrieb gerade in dem betreffenden Lande. Für mehrere Bundesstaaten zusammen braucht öfters nur ein gemeinsamer Hauptbevollmächtigter bestellt zu werden. Dieser muss seinen Wohnsitz innerhalb der betreffenden Bundesstaaten haben und gilt zu weitgehenden Vertretungsbefugnissen ermächtigt. Die Befugnisse erstrecken sich jedoch nicht

auf den Abschluss der Lebensversicherungs-Verträge; hierfür muss vielmehr die Gesellschaftsleitung um Genehmigung angegangen werden (§ 115, Abs. 2).

Die Obliegenheiten der Aufsichtsbehörde sind nach Zulassung der Unternehmungen sehr weitgehend. Da es Pflicht der Behörde ist, den ganzen Geschäftsbetrieb der Gesellschaften, insbesondere die Befolgung der gesetzlichen Vorschriften und die Einhaltung des Geschäftsplanes zu überwachen, so ist ihr, damit sie ihren verantwortungsvollen Aufgaben gerecht werden kann, die Befugnis eingeräumt, alle Anordnungen zu treffen, welche geeignet sind, eine Übereinstimmung des Geschäftsbetriebes mit den Gesetzen und dem Geschäftsplan dauernd herbeizuführen, oder Missstände zu beseitigen, durch welche eine Gefährdung der Interessen der Versicherten eintritt, oder durch welche der Geschäftsbetrieb mit den guten Sitten in Widerspruch gerät (§ 64, Abs. 2).

Ausser diesen allgemeinen Befugnissen räumt das Gesetz der Aufsichtsbehörde im einzelnen eine ganze Reihe besonders aufgezählter Rechte ein. Hinsichtlich dieser dürften die ausländischen Gesellschaften weniger scharf unter Kontrolle stehen als die inländischen, da sich die Bestimmungen für die inländischen auf deren gesamten Betrieb erstrecken, die für die ausländischen aber naturgemäss nur auf den Betrieb in Deutschland mit gleicher Strenge sich anwenden lassen.

Die besonderen Rechte der Aufsichtsbehörde sind:

1. das Recht jederzeitiger Prüfung der Geschäftsführung und Vermögenslage zwecks Ermittlung der Übereinstimmung der veröffentlichten Rechnungsabschlüsse und Jahresberichte mit den Tatsachen und dem Inhalt der Bücher;
2. ebenso das Recht der jederzeitigen Prüfung hinsichtlich des Vorhandenseins der vorschriftsmässigen Reserven, der vorschriftsmässigen Anlage und Verwaltung;
3. das Recht der Einziehung jeder der Behörde erforderlich scheinenden Auskunft über den Geschäftsbetrieb und die Vermögenslage von den Inhabern, Geschäftsleitern, Bevollmächtigten und Agenten eines Unternehmens (bei den ausländischen Unternehmungen nur von den in Deutschland wohnenden Bevollmächtigten);
4. das Recht auf Einsicht aller Bücher, Belege und derjenigen Schriften, welche für die Beurteilung des Geschäftsbetriebes und der Vermögenslage von Bedeutung sind;
5. das Recht auf Entsendung eines Vertreters in die Versammlungen und Sitzungen der Unternehmungen, welche einen Aufsichtsrat, eine Mitglieder-Versammlung oder ähnliche Gesellschaftsorgane haben;
6. das Recht der in die Versammlung gesandten Vertreter, jederzeit gehört zu werden;
7. das Recht der Berufung von Versammlungen und Sitzungen, sowie die Ankündigung von Gegenständen zur Beratung und Beschlussfassung zu verlangen und bei einer Weigerung die Berufung oder Ankündigung auf Kosten der Unternehmung selbst vorzunehmen (§ 65, Abs. 1, 2, 3);
8. das Recht auf Überwachung bei der Liquidation oder der sonstigen Beendigung des Geschäftsbetriebes (§ 66);
9. auch für den Konkurs eines Versicherungsunternehmens sind der Aufsichtsbehörde besondere Befugnisse eingeräumt. Auf ihren Antrag ist der Konkurs zu eröffnen; und ein Antrag auf Eröffnung kann nur von der Aufsichtsbehörde gestellt werden. (Diese Vorschrift lässt sich natürlich nicht ohne weiteres auf aus-

ländische Unternehmungen übertragen.) Der Vorstand der Gesellschaft hat, sobald Zahlungsunfähigkeit eintritt, oder sobald sich bei der Aufstellung der Jahresbilanz oder Zwischen-Bilanz Überschuldung ergiebt, Anzeige zu machen (§ 68). Um aber im Interesse des Versicherten unter Umständen dem Konkurs einer notleidenden Anstalt vorzubeugen, ist der Aufsichtsbehörde das Recht eingeräumt, durch Sanirungs-Massregeln die sonst gefährdete Durchführung der übernommenen Versicherungen möglich zu machen. In einem solchen Falle kann die Aufsichtsbehörde ihre erforderlichen Anordnungen treffen, wie auch die Vertreter des Unternehmens auffordern, binnen bestimmter Frist eine Änderung der Geschäftsgrundlagen oder die sonstige Beseitigung der Mängel herbeizuführen. Die Behörde kann insbesondere bestimmte Arten von Zahlungen, Rückkauf oder die Beleihung des Versicherungsscheines, sowie Vorauszahlung darauf verbieten, nötigenfalls nach dem Vorbilde des englischen Rechts („Act to amend the Law relating to Life Assurance Companies" vom 9. August 1870, Nr. 22) die bestehenden Verpflichtungen einer Lebensversicherungs-Unternehmung aus ihren Versicherungen bis um 33⅓% herabsetzen (§ 69);

10. das Recht auf Untersagung des Geschäftsbetriebes, falls die Gesellschaft sich eines fortgesetzten Zuwiderhandelns gegen die Gesetze oder den genehmigten Geschäftsplan schuldig macht, oder sich bei Prüfung der Geschäftsführung oder Vermögenslage so schwere Missstände ergeben, dass bei Fortsetzung des Geschäftsbetriebes die Interessen der Versicherten gefährdet sind; oder schliesslich, wenn der Geschäftsbetrieb mit den guten Sitten im Widerspruch steht (§ 67, Abs. 1).

Hier ist die eine Ausnahme zu erwähnen, in welcher die ausländischen Gesellschaften nach der Zulassung ausdrücklich den inländischen nicht gleichgestellt werden; auch der Bundesrat kann nämlich auf Antrag des Reichskanzlers die Untersagung ihres Geschäftsbetriebs nach freiem Ermessen beschliessen (§ 91, Abs. 1, 2). Eine solche Bestimmung folgt aus der Natur der Sache, da die Inlandsbehörden den Betrieb am Sitz des Unternehmens zu beeinflussen nicht in der Lage sind.

Jede Änderung des Geschäftsplanes bedarf ebenso wie jede Übertragung des Versicherungsbestandes der Anzeige und Genehmigung (§§ 13, 14 etc.). Eine solche ist ferner erforderlich für den Erwerb von Grundstücken seitens inländischer Gesellschaften, soweit es sich nicht um den Erwerb von durch die Gesellschaften beliehenen Grundstücken im Zwangsversteigerungs-Verfahren handelt (§ 54). Die ausländischen juristischen Personen bedürfen hingegen auch der Erlaubnis der betreffenden Bundesstaaten.

Über die Buchführung und Rechnungslegung im allgemeinen (§ 55), die Berechnung, Prüfung und Anlage der Prämien-Reserve insbesondere (§§ 56-61), ist in diesem Aufsatz nicht zu berichten.

Zur Befolgung ihrer Anordnungen, welche sie zwecks Beseitigung von Missständen gegeben hat, ist die Aufsichtsbehörde berechtigt, Geldstrafen bis zu 1000 M. zu verhängen (§ 64, Abs. 3). Diese Strafen kann sie auch aussprechen, falls ihr nicht die ihr zustehende Einsicht in die Bücher gewährt oder die von ihr geforderte Auskunft erteilt wird (§ 65, Abs. 2).

Unter Strafe gestellt — u. z. teils unter Geld-, teils unter Freiheitsstrafen — sind folgende Handlungen:

1. wissentlich falsche Angaben zwecks Konzessionserlangung oder -Verlängerung, oder zwecks Genehmigung einer Veränderung (§ 105);
2. Geschäftsbetrieb ohne Genehmigung (§ 108);
3. Unterlassung von Anzeigen seitens des Vorstands etc. (§ 109);
4. wissentliche Verletzung der Vorschriften über die Vermögensverwaltung oder wissentliche falsche Angaben darüber vor dem obersten Organ (§§ 106, 111)
   a) seitens der Mitglieder des Vorstandes;
   b) seitens der Mitglieder des Aufsichtsrats;
   c) seitens eines Liquidators;
   d) seitens des Mitglieds eines sonstigen Organs;
   e) diesem Delikt verwandt ist die wissentlich falsche Angabe seitens eines Sachverständigen (§ 107);
5. Untreue der Mitglieder des Vorstands etc. (§ 110);
6. Konkursvergehen (§§ 112, 239, 241 Konkursordnung).

VII. Verfassung und Verfahren der Aufsichtsbehörde.

Die aufsichtführende Reichsbehörde, welche die Bezeichnung trägt: Kaiserliches Aufsichtsamt für Privat-Versicherung und in Berlin seinen Sitz hat, besteht aus einem Präsidenten und der erforderlichen Zahl ständiger und nicht ständiger Mitglieder, welche auf Vorschlag des Bundesrats vom Kaiser ernannt, bezw. vom Bundesrat gewählt werden (§ 70).

Das Verfahren vor dem Amt wird in dem Reichsgesetz nur in seinen Grundzügen geregelt; Mündlichkeit des Verfahrens, Entscheidungen in der Besetzung von drei Mitgliedern des Amts und zwei des Beirats (§ 73); Möglichkeit eines Rechtsmittels — Rekurs bezw. Beschwerde — gegen die meisten Entscheidungen des Amts (§§ 74, 75, 77); Recht des Amtes auf Zeugenvernehmung u. dgl. m. (§§ 78, 79). Die näheren Anordnungen über das Verfahren sind durch kaiserliche Verordnung geregelt (§ 80).

Die Kosten des Aufsichtsamtes trägt das Reich. Von den Versicherungsunternehmungen werden jedoch in der Form von Jahresbeiträgen Gebühren erhoben, welche nach den einer jeden Unternehmung im letzten Geschäftsjahr aus den im Inland abgeschlossenen Versicherungen erwachsenen Brutto-Prämien (Beiträgen, Vor- und Nachschüssen, Umlagen), jedoch abzüglich der zurückgewährten Überschüsse oder Gewinnanteile bemessen werden. Als Maximum ist der Betrag von $1^0/_{00}$ der Bruttoprämieneinnahme abzüglich der zurückgewährten Überschüsse oder Gewinnanteile festgesetzt. Ein anderer Verteilungsmassstab kann vom Bundesrat nach Anhörung des Beirats fixiert werden. Die Gebühren „sollen annähernd die Hälfte der im letzten Reichshaushaltsetat für das Amt festgesetzten fortdauernden Ausgaben betragen."

Die Kosten der ersten Einrichtung hat das Reich allein getragen. Die Kosten bei unbegründeten Anträgen oder Beschwerden können den Antragstellern auferlegt werden (§ 82).

Von hohem wissenschaftlichen und praktischen Interesse können die Veröffentlichungen des Amtes werden, die dieses alljährlich über den Stand der seiner Aufsicht unterliegenden Versicherungsunternehmungen, sowie über seine Wahrnehmungen auf dem Gebiete des Versicherungswesens herauszugeben hat, wie es auch fortlaufend die Rechts- und Verwaltungsgrundsätze aus dem Bereiche seiner Tätigkeit publiziert (§ 83).

Ausserdem ist die fakultative Berufung von Kommissären nach Be-

darf und zur Erleichterung des Geschäftsverkehrs des Aufsichtsamtes mit den seiner Aufsicht unterstehenden Unternehmungen vorgesehen (§ 71).

Neben dem Amt ist ein Versicherungs-Beirat eingerichtet, eine aus Sachverständigen bestehende, teils rechtsprechende, teils begutachtende Behörde, deren Mitglieder, „angesehene und erfahrene Vertreter und Kenner des deutschen Versicherungswesens", im Ehrenamte tätig sind. Als Muster diente hier der preussische Versicherungsbeirat (§ 72).

VIII. Vorschriften über Beziehungen zu den Versicherten.*

Von den allgemeinen Versicherungs-Bedingungen darf nach ausdrücklicher Gesetzesvorschrift (§ 9, Abs. 2) zu Ungunsten des Versicherten nur aus besonderen Gründen abgewichen werden und nur dann, wenn der Versicherte vor Abschluss des Vertrages ausdrücklich auf diese Abweichungen hingewiesen worden ist und seine schriftliche Zustimmung hierzu gegeben hat. Vor Abschluss des Vertrages ist dem Versicherungsnehmer ein Exemplar der allgemeinen Versicherungs-Bedingungen vorzulegen und der Versicherungsnehmer hat schriftlich zu bescheinigen, dass dies geschehen ist. Bei Gegenseitigkeitsunternehmungen ist auch die Vorlegung der Satzungen Vorschrift (§ 10, Abs. 1).

Ferner hat jede Gesellschaft auf Verlangen jedem Versicherten ein Exemplar des Rechnungsabschlusses und des Jahresberichtes zu übergeben. Die Aufsichtsbehörde kann über die Art der Veröffentlichungen des Jahresberichts weitere Bestimmungen treffen (§ 55, Abs. 3).

IX. Gegenseitigkeits-Vereine.

Vor dem Erscheinen des bestehenden Gesetzes entbehrten die auf dem Gegenseitigkeits-Prinzip beruhenden Versicherungs-Vereine in fast allen deutschen Staaten der besonderen gesetzlichen Ordnung, wenn man von den Genossenschaften absieht. Die Rechtsverhältnisse bestimmten sich nach den Regeln des verschiedenen allgemeinen bürgerlichen Rechtes über Korporationen und Gesellschaften. Es gab Gegenseitigkeits-Vereine mit und solche ohne den Charakter einer juristischen Person.

Das neue Gesetz hat ein einheitliches Recht für die Versicherungs-Vereine auf Gegenseitigkeit geschaffen und zwar erfreut sich der das Recht dieser Vereine behandelnde Abschnitt (§§ 15-53) allgemeinster Zustimmung.

Das Recht der Versicherungs-Vereine auf Gegenseitigkeit wird in tunlichster Anlehnung an das Recht der Aktien-Gesellschaften (Deutsches Handels-Gesetzbuch 2. Buch, §§ 178-324) geregelt. Das Gesetz unterscheidet zwischen den gewöhnlichen oder grossen eingetragenen Gegenseitigkeits-Vereinen und kleineren Vereinen, die einen sachlich, örtlich oder hinsichtlich des Personenkreises eng begrenzten Wirkungskreis haben (§ 53), wie Sterbekassen u. ähnl. Im allgemeinen gelten die Vorschriften für die grösseren Vereine auch für diese kleineren Vereine, nur sollen sie nicht der Eintragung wie diese unterliegen, und das Recht der Vereine, wie es das Bürgerliche Gesetzbuch normiert hat (§§ 24-53), findet auf sie entsprechende Anwendung. Diese für die kleineren Vereine bestimmten Ausnahmen bleiben in der folgenden Darstellung der hier nur ganz summarisch zu schildernden Privatrechtsverhältnisse zweckmässig ausser Betracht.

* *Anmerkung:* Der Reichs-Gesetzentwurf über den Versicherungs-Vertrag, welcher Mitte Mai 1903 erschienen ist und auch für den Lebensversicherungs-Vertrag neues Recht schaffen will, ist hier nicht berücksichtigt worden, da er noch viele Aenderungen durchmachen dürfte, ehe er Gesetz wird.

Künftig erlangen die Gegenseitigkeits-Vereine gleichzeitig mit ihrer Konzessionierung die *Rechtsfähigkeit;* es bedarf also nicht mehr, wie bisher, in Staaten mit Konzessionspflicht einer doppelten Verleihung (§ 15). Die Verfassung der Vereine wird als *Satzung* bezeichnet (§ 17); sie hat die Firma und den Sitz des Vereins anzugeben (§ 18); soll Bestimmungen enthalten über Beginn und Ende der Mitgliedschaft (§ 20); über Bildung und Tilgung eines regelmässig erforderlichen, meist bar einzuzahlenden *Gründungsfonds,* der zur Deckung der Kosten der Vereinserrichtung sowie als Garantie- und Betriebsfonds zu dienen hat (§§ 22, 23); über die Art der *Beiträge,* ob und welche Vorschuss- oder Nachschussleistungen zu erfolgen haben (§ 24) und wie die Ausschreibung derselben zu erfolgen hat; auch über die Verwendung sonstiger Deckungsmittel soll sie Bestimmung treffen (§ 27); ferner hat sie die Bildung eines *Reservefonds* zu bestimmen (§ 37) und die Verteilungsart für *Überschüsse* zu enthalten. Schliesslich sind, abgesehen von sonstigen dem Aktienrecht entsprechenden Erfordernissen (§ 28: Form der Bekanntmachungen des Vereins; § 30 ff.: Anmeldungspflicht zur Eintragung in das Handelsregister etc.), Bestimmungen über die Bildung der *Organe* des Vereins erforderlich.

Der Versicherungsverein hat einen *Vorstand* (§ 34), einen *Aufsichtsrat* (§ 35) und ein der Generalversammlung bei der Aktien-Gesellschaft entsprechendes *oberstes Organ* (§ 36), das in der Versammlung aller oder eines Teiles der Mitglieder besteht. Die Funktionen der Organe und ihre Rechtsverhältnisse entsprechen durchaus denen der Aktien-Gesellschaften. Das *Vereinsvermögen* haftet ausschliesslich für die Schulden des Vereins (§ 19). Die Mitglieder haften weder während des Bestehens des Vereins, noch im Konkursfall den Gläubigern desselben direkt, sondern lediglich dem Vereine gegenüber (§§ 19, 50).

Satzungsänderungen sind in der Regel nur durch das oberste Organ zu bewerkstelligen (§ 39) und eintragungs- sowie genehmigungspflichtig (§§ 40, 41).

Die *Auflösung* des Vereins erfolgt durch Ablauf der in der Satzung bezeichneten Zeit (§ 42) oder durch Beschluss des obersten Organs, für welchen $\frac{3}{4}$ Majorität und Genehmigung der Aufsichtsbehörde vorgeschrieben ist (§ 43); auch die Auflösung durch *Fusion* ist vorgesehen (§ 44).

Für die *Liquidation* des Vereins gelten ebenfalls analoge Bestimmungen wie für die Aktien-Gesellschaften (§§ 46, 47).

Beim *Konkurs* eines Versicherungsvereins gilt ebenfalls Handelsrecht hinsichtlich der Eröffnung, während für die Nachschusseinziehungen die entsprechenden Vorschriften des Genossenschaftsrechts zur Anwendung gelangen (§§ 49-52).

Prinzipiell müssen die Beiträge der Mitglieder und die Leistungen des Vereins an diese bei gleichen Voraussetzungen nach gleichen Grundsätzen bemessen werden und nur Mitglieder des Vereins können sich bei ihm versichern. Es ist aber den Vereinen, soweit die Satzung dieses ausdrücklich gestattet, die Möglichkeit gewährt, Versicherungen auch mit Nichtmitgliedern gegen feste Prämien abzuschliessen (§ 21); dann liegt ein sogenannter *gemischter Verein* vor.

Eine äusserst schwierige Frage ist es, inwieweit diese Bestimmungen des Gesetzes über das Recht der inländischen Versicherungs-Vereine auf Gegenseitigkeit für ausländische Anstalten in Betracht kommen. Denn hier werden nicht nur öffentlich-rechtliche, sondern auch zahlreiche privat-rechtliche Bestimmungen getroffen. Allein diese Erörterung,

welche in das Gebiet des internationalen Privatrechts gehört, übersteigt den Rahmen dieser Abhandlung.

X. Anwendung des Gesetzes auf bestehende Gesellschaften.

Nach allgemeinen Rechtsgrundsätzen haben neue Gesetze keine rückwirkende Kraft. Dieses Prinzip spricht auch das Privatversicherungsgesetz aus.

Die Bestimmungen finden daher allgemein und uneingeschränkt Anwendung nur auf nach dem 1. Januar 1902 entstandene Unternehmungen.

Zweckmässigerweise musste dieser Grundsatz aber in geringer Hinsicht, sollte das Gesetz für die bestehenden Gesellschaften von Nutzen sein, durchbrochen werden.

Sämtliche am 1. Januar 1902 landesgesetzlich zugelassenen Unternehmungen bedürfen *keiner erneuten Konzession* nach Massgabe des Gesetzes (§ 92), können eine solche aber nachsuchen, wozu sie unter Umständen Anlass haben, um sich von Unannehmlichkeiten zu befreien, die ihnen bei ihrer ehemaligen Zulassung vielleicht auferlegt worden sind. Alle Gesellschaften unterstehen von diesem Tage an der Aufsicht, und zwar die ausländischen und diejenigen deutschen, deren Betrieb über den Umfang eines Bundesstaates sich hinaus erstreckt der Kontrolle des Kaiserlichen Aufsichtsamts, während die anderen deutschen Unternehmungen der Kontrolle der Landesbehörden unterstehen (§ 93). Bei Ablauf einer landesgesetzlich nur auf bestimmte Zeit erteilten Konzession muss die neue Erlaubnis bei der Aufsichtsbehörde eingeholt werden (§ 94), während bei einer nur widerruflich erteilten Konzession die freie Widerruflichkeit der Aufsichtsbehörde zufällt (§ 95). Durch Nachsuchung der Konzession nach den nunmehrigen Bestimmungen befreit sich der Unternehmer von dieser Fessel. Diese beiden Bestimmungen (§§ 94, 95) gelten für *alle* Gesellschaften.

Um eine fortlaufende Beaufsichtigung des Betriebs möglich zu machen, war es erforderlich, die Verpflichtung der bestehenden Gesellschaften zur Klarlegung ihres Geschäftsplans auf Erfordern der Behörde binnen einer bestimmten Frist zu normieren (§ 98). Von diesem ihnen zustehenden Recht hat das Aufsichtsamt bereits im Laufe des Jahres 1901 Gebrauch gemacht, da dieser Paragraph neben anderen schon mit dem 1. Juli 1901 in Kraft getreten ist.

Die *Vorschriften über die Prämienreserve* bei der Lebensversicherung, sowie der Kranken- und Unfallversicherung finden teils sogleich Anwendung — bei den nach dem 1. Januar 1902 abgeschlossenen Versicherungen — teils nach einer Frist von 3 bezw. 5 Jahren, da nach den Motiven „eine schonende Rücksichtsnahme auf die bestehenden Geschäfts- und Rechtsverhältnisse geboten erscheint.“ Ausnahmsweise ist eine Fristverlängerung möglich (§ 99). Ein sofortiges Eingreifen der Behörde ist aber gestattet (§ 100), wenn sie die Prämienreserve „zur Sicherstellung einer dauernden Erfüllung der an den Versicherungsverträgen sich ergebenden Verpflichtungen nicht für ausreichend“ hält. Alsdann kann sie eine Frist zur Beseitigung der Mängel setzen, vorbehaltlich strengeren Eingreifens.

Besondere Bestimmungen mussten für *die Gegenseitigkeitsvereine* getroffen werden. Solche *mit Rechtsfähigkeit* — abgesehen von den Genossenschaften und gewissen ähnlichen sächsischen Vereinigungen (§ 102) — unterliegen mit Ausnahme der Vorschriften über die Bildung eines Gründungs- und Reservefonds sogleich den neuen Vorschriften; auf solche *ohne Rechtsfähigkeit* finden die einschlägigen Paragraphen keine Anwendung. Diese Vereine können aber von der Aufsichtsbehörde zur Nachsuchung der Konzession binnen einer Frist von

mindestens 6 Monaten aufgefordert werden; im Weigerungsfalle ist die Aufsichtsbehörde zur Betriebsuntersagung befugt.

Auf *Unternehmungen in Liquidation* findet das Gesetz keine Anwendung mehr (§ 103).

XI. Schluss: Folgerungen und Forderungen.

Die im Vorhergehenden versuchte kurze systematische Darstellung der juristischen und ökonomischen Grundsätze des deutschen Reichs-Gesetzes vom 12. Mai 1901 zeigt uns, dass die Staatsaufsicht in Deutschland unter die bei Nr. 4 des Punktes 13 der vorläufigen Tagesordnung des New-Yorker Kongresses angeführten Grundsätze einzureihen ist, indem das Gesetz

1. Öffentlichkeit verlangt;
2. Solvenz zu gewährleisten sucht;
3. bei den Geschäftsmethoden der Gesellschaften bestimmend mitwirkt.

Eine Abänderung des Gesetzes ist auf absehbare Zeit hin ausgeschlossen. Es ist also mit den gegebenen Verhältnissen, wie wir sie dargestellt haben, zu rechnen. Danach erscheint mir vom internationalen Standpunkt aus wünschenswert:

1. Das fortgesetzte Studium des privaten Versicherungswesens aller Kulturstaaten zwecks Herbeiführung einer möglichst gerechten und richtigen Beurteilung der Verhältnisse der Versicherungs-Gesellschaften in den verschiedenen Kulturländern unter einander;
2. als ein Mittel zu diesem Zwecke die Veranstaltung einer Sammlung aller für das private Versicherungswesen geltenden Gesetze in genauer, zuverlässiger deutscher, französischer und englischer Übersetzung durch das permanente Komite für internationale versicherungs-wissenschaftliche Kongresse.
3. Im Zusammenhang mit dieser Sammlung erscheint es wünschenswert, auf die Tagesordnungen aller künftigen Kongresse die Fortschritte auf dem Gebiet der gesamten Versicherungs-Gesetzgebung in allen Kulturländern zu setzen.

ABSTRACT.

STATE SUPERVISION OF LIFE INSURANCE COMPANIES IN GERMANY.

By Dr. Manes.

I. Introduction.

As far as the German Empire is concerned, the questions raised at the IV. International Congress of Insurance and pertaining to the nature of state supervision and the principles involved have been definitely settled by the Act of May 12, 1901, governing private insurance companies.

A summary and systematic review of this Act, which is not readily intelligible to the laity, especially foreigners, would appear very desirable. We shall take up those parts of the law which pertain to jurisdiction and economy, while the technical side shall be dealt with in a separate article by other authors.

Note: In the following explanations I have taken my book on law (published in 1902 by Hirschfeld, Leipzig) and my essay entitled "The importance of the laws governing private insurance companies in Germany for political economy," which appeared in Conrad's "Jahrbuechern fuer Nationaloekonomie und Statistik" (1902, Vol. 78) as a basis. I also wish to refer to: Samwer, "The Business management of Foreign Life Insurance Companies according to German Imperial Law" in the Journal of the Institute of Actuaries, Vol. 36, 1902, and Section VI. of Knebel-Doeberitz's Commentary, published in Berlin, 1902.

II. General Remarks.

Only since January 1st, 1902, on which day the new law went into effect, the 26 states of the German Empire have a uniform law governing the main points of the business management of life insurance companies. Before that time, there were perhaps even more laws than states, as it frequently happened that a uniform law did not exist in the same state.

The new law of May 12th, 1902, which affects not only German life insurance companies, but is also felt by foreign offices, marks such an enormous progress that no doubt can be entertained as to the beneficial effect of the law, but at best only as to the extent of this effect.

If a foreigner should wish to criticise the law, he will above all have to consider two points. In the first place, it is impossible for the law-makers to sacrifice anything which has become historical, which springs from a national peculiarity, to a theory however ideal; in the second place, if the legislature interferes at all with the management of life insurance companies, it will be impossible to treat domestic and foreign enterprises the same in all respects; absolute equality in such cases might easily become the direct opposite. This is especially true in case the principle of licenses for life insurances has been introduced, as in Germany, and the supervising authority is taken as a protective institution for the interests of the public supposed to be unable, or unwilling to control the insurance companies.

III. The Principle of Licenses and Its Justification.

Just as a reconciliation of opinions concerning the best politics in tariff matters is impossible because there is none which is absolutely the best, but every form of politics is *relatively* good and therefore relatively bad, just so it is impossible to silence the controversy on the best system of insurance, whether this controversy be among domestic companies on both sides, or domestic companies on the one side and foreign institutions on the other. We can here express our convictions, objectively, that the principles of the law, especially as far as licenses are concerned, strike a happy medium, generally speaking, between the diametrically opposed interests of the various circles which are concerned in insurance.

We cannot better justify the introduction of the license principle for the German Empire than by quoting the words which the legislator spoke in arguing for the law. He said among other things:

The law is based on the idea that the general welfare is greatly concerned in a steady and sound development of insurance, and that the State is bound to guard the public interest in regard to insurance. On the one hand this is caused by a special consideration for the great economic, social and ethical importance of insurance, and on the other for the danger threatening the public welfare by a malpractice of insurance, a danger which is the more threatening, as even an educated and careful citizen as a rule is not able to judge the reliability of insurance institutions without the help of experts. In addition, insurance more than any other branch of business has to rely on the confidence of the public. If this confidence is lost, the entire insurance business suffers. It is not to be supposed that an individual can rightly judge to which institution he may give his confidence. Moreover, even an expert is hardly able to judge correctly from its annual report the trustworthiness of an institution.

Hence, unless state control for a steady and sound development of insurance, and a special protection of the insured is to be dispensed with altogether, various reasons will lead one to a system of material control of insurance companies, such as the law outlines.

It is interesting to note that those foreign states which have introduced the system of state supervision, have had satisfactory experience with the same, and numerous bills which have been submitted to the legislatures of other states show that these countries too regard state supervision as the best system, although there is, of course, still a wide margin for improvement.

IV. Treatment of Foreign Companies in General.

In principle, foreign companies have the same rights as domestic institutions. Laws designed for domestic companies are to be applied to foreign companies according to circumstances. There are, however, some exceptions which, though small in number, are still of considerable importance.

These exceptions in the treatment are, almost wholly, practiced when a

foreign company is admitted, or when admission is refused. This is very plain, self-evident and necessary. For if we acknowledge the principle that a domestic supervising authority is in a measure responsible for the business transactions of insurance companies doing business in the country, it is plausible that this authority must exercise more especial care towards an institution which has its regular seat of business outside of the country and whose entire business it cannot supervise for reasons of state or international law, than is necessary towards an institution whose entire business, more or less, is transacted inland. As von Knebel says, "an insurance company is not a conglomerate, but an organism, a whole composed of many parts united in one, from which one or another part cannot be abstracted at pleasure." Hence, foreign companies cannot be divided into a "foreign" and a "domestic" department, just as little as the total business of the foreign company can be under continual supervision. Hence recourse must be had to compromises.

We must now consider the various methods adopted by the German law.

V. Conditions for Admission.

All private associations that have for their purpose the transaction of insurance business (Par. 1) are subject to the general rules governing the permission for transaction of business in general. (Par. 4.) Domestic associations require the permit of the Imperial Supervisory Office for private insurance. (Par. 4.) In case the association wishes to carry on business in one Federate State, the office of the Federal State issues the permit instead of the Imperial Office. (Par. 91, 1.) Foreign companies must obtain the Chancellor's permit. Foreign companies that transact business by mail only, are not subject to these regulations which apply only to companies that transact business within the Empire through a representative, agent or broker.

To obtain a license, an application must be filed by domestic companies with the Supervisory Office, and by foreign companies with the Chancellor. In addition, applicants must send in a detailed account of the business to be transacted, which must clearly outline the management, etc., of the undertaking, thus enabling the Office to decide whether the company is able to carry out its contracts. The plan must state purpose and by-laws of the company, and name the district where the company wishes to transact business. The "district" may comprise the whole territory of the Empire, which is the rule and will be considered here, or it may consist of one or more of the Federal States. Even if they carry on insurance in one of the Federate States only, foreign companies are under the control of the Imperial Office.

The law prescribes exactly what the plan of business must contain (Par. 11) and also the necessary contents of the contract, i.e., the by-laws of the company.

It has been stated above that the general rules for insurance must be handed in when applying for a permit. The law prescribes these rules for foreign and for domestic companies.

Unless very special reasons for refusal exist, domestic companies must receive permission to transact business. Such reasons are: Regulations which contradict the law, insufficient financial securities, inadequate protection of the interests of the insured, or offense to good manners. (Par. 7.) Another condition for granting a permit to a domestic insurance company is that the company is, legally, a stock company, as determined by the German Commercial Code, or a mutual insurance company, as regulated by the insurance law itself. (Par. 6.) This restriction can, of course, not be applied to foreign companies to its full extent, and thus the German law confers a privilege upon foreign companies which it denies to domestic associations.

The filing of the application (with additional papers mentioned above) is followed by a conference of the Office, based upon a written report of the referee. (Par. 73.) Three members of the Supervisory Office and two of the Advisory Board take part in this conference. (Par. 73, Div. 1.) Before a license is refused, representatives of the institution concerned shall be heard, and, upon their request, shall be admitted to the conference. (Par. 73, Div. 4.) Reasons for refusal must be stated. Before such formal proceedings are instituted, the President of the Office himself may send out a declining decision. If the company is not satisfied with this decision, it may within two weeks apply for the formal proceedings outlined above. (Par. 73, 6.) A final appeal against the decision of the formal proceedings is also permissible. (Par. 74.)

While, in the case of domestic companies, the Supervisory Office is both an advisory and a decisive court, it is in the case of foreign companies merely advisory, the decision being matter of the Chancellor, against whose decision there is no appeal. (Par. 86.) The Chancellor is in no way obliged to grant a

license. The license *may be granted* by the Chancellor *only* when the following conditions have been complied with:

1.) The Advisory Board must have been heard.

2.) The Supervisory Office must give a report, that none of the reasons for which license may be denied to domestic companies exist.

3.) The foreign office must furnish proof that it can at home, in its own name, obtain privileges, contract liabilities, bring suit in court and can be sued.

4.) The company must bind itself to establish a branch office within the German Empire, and name a general manager who shall have his domicile within the Empire. (Par. 86.) The granting of a license is moreover subsequent to the furnishing of a security, which may also be required from a domestic company. (Par. 7, 2.)

If all these conditions have been complied with, the Chancellor *may* grant the license, but is not *bound* to do so. He may even on his own judgment entirely refuse a license, or may curtail the same; especially may he limit the sphere of action of the company to parts of the Empire.

Another security which must be furnished is the establishment of a premium reserve fund for all inland insurance contracts, in such a manner that it can be disposed of only with the concession of the Supervisory Office. (Par. 90, 2.)

Companies which have been admitted can make inland insurance companies only through their agents residing in the Empire. (Par. 87.)

The place of residence in the German Empire is exclusively determining the competency of the courts in all lawsuits brought against the company which result from its inland business. (Par. 89.)

Domestic companies, unless they themselves request differently, are admitted to the domain of the whole Empire without any further measures. In the case of foreign companies the Chancellor decides by his own judgment.

The above might lead one to believe that the Government had shown a certain distrust to foreign companies. This is, however, not so. To be sure, the Chancellor alone decides, but only after an independent, legally stipulated conference has taken place, which has led to a recommendation from the Supervisory Office which accentuates the accordance with the laws prescribed for domestic companies. If such a recommendation has been obtained from the expert committee, the Chancellor will, for obvious reasons, treat foreign companies in Germany much as the German companies are treated in the home country of the foreign companies.

International contracts may restrain the final decision of the Chancellor, but they cannot influence the preliminary steps of the Supervisory Office.

It is clear that it is in the hands of the foreign companies themselves, to obtain a treatment similar to domestic companies in Germany, i.e., they must submit to legal conditions which are, at the bottom of it, no more strict than those for domestic companies. If they do not think this necessary, if they labor under the delusion that the German Government should have more confidence in a foreign company than in a German institution, and if for that reason they do not comply with the above conditions, the Chancellor cannot admit them, despite his free judgment, because the Supervisory Office and the Advisory Board cannot acknowledge the fulfillment of conditions. For the Chancellor too, is under the law.

Different from other trades and professions, the German Insurance Companies have demanded the most liberal treatment of foreigners when the laws were before the Reichstag, while the legislators were inclined to apply rather far-going precautions.

I do not believe that the rules governing the establishment of foreign companies have been drawn up with the intention of giving protection to German companies,—since the German life insurance companies neither demand nor require protection—but simply in the consciousness of great responsibility towards the inland public, for how could any German authority which admits domestic companies only after compliance with careful regulations, admit without investigation and examination a foreign company, which may be subject to no conditions for admission at home?

Relations Between Companies and the Supervisory Office After Admission.

After their admission, foreign, as well as domestic companies are subject to the control of the Supervisory Office and the same laws apply to both undertakings. (Par. 91, 1.) The admission is made public by the Supervisory

Office, and, in the case of foreign companies, the general manager is named. The company must then enter its name in the trade register. (Par. 30.)

The Supervisory Office has many and far-reaching duties. Besides a number of general obligations, it has many specially named rights. In this article we do not deal with the book-keeping and general accounting, the calculation, examination and investment of the premium reserve fund.

The Supervisory Office is empowered to impose a fine not exceeding 1000 Marks for failure to comply with any of the rules and regulations which it has passed. (Par. 64, 3.)

Constitution and Membership of the Supervisory Office.

The controlling tribunal which bears the name: Imperial Office of Supervision for Private Insurance, and which has its seat in Berlin, consists of a President and the required number of permanent and non-permanent members who are named by the Emperor upon the proposition of the Bundesrath, or are elected by that body.

The law regulates only the main principles of the proceedings before the Office.

Moreover, provision is made for the appointment of commissioners when this becomes necessary for facilitating the business of the Supervisory Office.

Connected with the office there is an advisory insurance board consisting of experts and constituting a Board of Estimate and Decision whose members, "respected and experienced representatives and judges of the German insurance industry" hold honorary positions.

The Imperial Court of Justice has published a bill on the insurance contracts about the middle of May, 1903.

Regulation of the Relations Between Insurance Companies and the Insured Public.

The law states very distinctly that any deviation from the conditions of insurance to the disadvantage of the insured is permissible only under special conditions, and only if the insured has been specially advised of such a course and has given his consent in writing, before concluding the insurance contract. A copy of the general conditions of insurance must be handed to the person to be insured before the contract is made, and the taker of a policy must state in writing that this has been done. In the case of mutual societies, a copy of the Constitution must also be shown.

Every company, moreover, must hand to the insured upon request a copy of the annual report and balance sheet. The Supervisory Office may issue further regulations on the manner of publishing these annual reports.

Mutual Societies.

Before the present laws went into effect, mutual insurance companies, with the exception of unions, had no legal standing. They were subject to the regulations of the civil code which applied to corporations and societies. There were mutual insurance companies with and such without the character of artificial persons.

The new law has created uniform legal relations for mutual insurance companies, and the section which deals with the rights of such societies has met with universal approval. The rights of mutual life insurance companies are regulated as far as possible on the same basis as the rights of stock companies. (German Commercial Code, Part II., Par. 178-224.) A difficult question is the one how far the laws governing domestic companies apply to foreign insurance companies, for here we have to deal not only with public, but also with civil law.

Application of the Law to Existing Companies.

According to general principles, new laws have no retroactive power. This principle is expressed in the law concerning private insurance. Therefore, all the above regulations apply only to associations founded after January 1st, 1902. If, however, the law was to be of any use to companies then existing this principle would have to be somewhat modified in their case.

Final Conclusions and Further Suggestions.

Thus we see from the above systematic representation of legal and economic principles of the German Imperial Law of May 12, 1901, that State Supervision in Germany is in keeping with the principles stated in IV., P. 13, of the preliminary minutes of the New York Congress, since the law

1) requires publicity
2) Attempts to guarantee solvency,

3) Co-operates in the business methods of the company. Any alteration of the law is not to be expected within visible time. Hence we must reckon with existing conditions which have been described; and therefore from an international standpoint the following seems desirable:

1.) To continue the study of private insurance industry in all civilized countries for the purpose of effecting as just and as correct as possible a judgment of the conditions of insurance in them; and for that purpose

2.) To collect all laws pertaining to private insurance in accurate French, German and English translations by a permanent committee for international actuarial congresses.

In connection with this collection it seems desirable to enter the progress of insurance legislation in all civilized countries as a topic for international actuarial congresses.

LA SURVEILLANCE PAR L'ÉTAT DES COMPAGNIES D'ASSURANCE-VIE EN ALLEMAGNE.

(La loi d'empire du 12 mai 1901 sur les entreprises d'assurances privées.)

PRINCIPES JURIDIQUES ET ÉCONOMIQUES.

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I. *Introduction.*

Les questions portées à l'ordre du jour du IV^e^ Congrès International d'Actuaires et relatives à la forme de la surveillance de l'État et aux principes à observer dans ce contrôle, ont trouvé leur solution définitive pour le territoire de l'empire allemand dans la loi du 12 mai 1901 sur les entreprises d'assurances privées.

Il semble donc opportun de donner un aperçu systématique du texte de loi, peu facile à comprendre pour les non-juristes et surtout pour les étrangers.

Nous examinerons ici les dispositions d'ordre juridique et économique; celles d'ordre technique feront l'objet d'un mémoire spécial par d'autres auteurs.

Comme cette étude s'adresse surtout aux lecteurs qui ne sont pas de nationalité allemande, les points importants de la loi concernant les sociétés étrangères ont été spécialement mis en lumière ici; ceux qui s'appliquent uniquement aux entreprises indigènes ont été esquissés plus ou moins brièvement.

Observation: J'appuie les développements suivants sur mon édition de la loi (parue en 1902 chez Hirschfeld à Leipzig) et sur mon travail « Die wirtschaftliche Bedeutung der deutschen Privatversicherungs-Gesetzgebung » (l'importance économique de la législation allemande sur l'assurance-privée) dans « Conrad's Jahrbücher für Nationalökonomie und Statistik » (1902), Volume 78. Voir en outre *Samwer:* « The Business Management of Foreign Life Insurance Companies according to German Imperial Law » in Journal of the Institut's Actuaries, Volume 36, 1902, et Chapitre VI du Commentaire de *von Knebel-Doeberitz,* Berlin 1902.

II. *Généralités.*

Ce n'est que depuis le 1^er^ janvier 1902, date de la mise en vigueur de la loi nouvelle, que dans les 26 états fédéraux de l'empire allemand il existe, pour les points les plus essentiels, un droit uniforme pour le fonctionnement des compagnies d'assurance-vie. Auparavant, il y avait pour ainsi dire plus de droits que d'États, attendu que souvent il n'y avait pas de droit uniforme au sein du même État.

Le seul fait qu'une simplification de la situation juridique compliquée a été opérée par la loi du 12 mai 1901 constitue déjà un progrès

si considérable, si sensible pour les entreprises tant indigènes qu'étrangères, que l'on ne peut contester l'influence extrêmement favorable de la loi, tout au plus peut-on épiloguer sur le degré de cette influence.

L'étranger qui veut critiquer la loi doit, avant tout, ne pas perdre de vue deux situations de fait. D'abord il est impossible au législateur de ne pas tenir compte, fût-ce même pour l'amour d'une théorie aussi idéale que l'on voudra, des exigences historiques adéquates au caractère propre d'une nation; ensuite il est impossible, dès qu'une intervention a lieu dans l'exploitation de l'industrie d'assurance, de traiter d'une façon parfaitement égale, sous tous les rapports, les entreprises indigènes et étrangères; car ici l'égalité pourrait devenir la plus grande inégalité.

Il en est ainsi surtout dans le cas où, comme en Allemagne, le principe de la Concession est introduit pour les établissements d'assurance-vie et que l'office du contrôle a reçu pour mission d'être une espèce d'établissement protecteur pour la généralité qui est supposée n'être ni disposée ni préparée à contrôler les Compagnies d'assurances.

Cette considération nous amène déjà à la discussion de la loi dans ses détails.

III. *Le principe de la concession et sa justification.*

De même qu'une parfaite conformité d'opinion sur la meilleure politique commerciale et douanière est impossible, puisqu'ici le mieux absolu n'existe pas, chaque forme de politique ne pouvant jamais être que relativement bonne et partant que relativement mauvaise, aussi de même une communion parfaite d'idées, soit entre indigènes, soit entre indigènes et étrangers, sur la meilleure forme du système suivant lequel il doit être permis de pratiquer l'assurance est impossible. A un point de vue objectif nous estimons que la loi a pour principe, spécialement en ce qui concerne l'autorisation de traiter les affaires, de respecter autant que faire se peut les intérêts, souvent diamétralement opposés, des différentes sphères de personnes à considérer dans l'assurance.

Pour justifier le principe de la concession, introduit pour l'empire allemand, nous ne pouvons mieux faire que de citer les termes que le législateur même a employés dans son exposé des motifs de la loi. Il dit: « S'il était admis que l'industrie des assurances doit être mise sur la « même ligne que toute autre branche d'industrie, à l'égard de laquelle « les règlements industriels ont assuré une libre garantie, que le soin « de sauvegarder ses intérêts dans ses relations d'affaires avec les établisse- « ments d'assurances pourrait être laissé uniquement au public lui-même « recherchant l'assurance et que la libre concurrence entre les établisse- « ments agirait avec assez de force pour rebuter les entreprises charlata- « nesques et rendre à la longue impossible l'exploitation d'affaires « manquant de solidité, alors certes il ne faudrait pas de surveillance « spéciale par l'État pour l'industrie des assurances et la législation « pourrait se borner à prescrire pour le commencement de l'exploitation « des affaires l'accomplissement de certaines exigences extérieures, par « exemple les statuts des compagnies d'assurances devraient contenir « certaines dispositions régulatrices consacrant l'existence de certaines « garanties financières, etc.»

Si l'on exigeait en outre le dépôt d'une somme déterminée comme caution et un exposé public et annuel de la situation des affaires et de l'avoir des établissements, ce serait encore autant de fait pour la protection du public.

La loi est basée sur la conception contraire à savoir que l'intérêt public est subordonné à un degré particulièrement élevé au développement prospère et solide de l'assurance et réclame la solicitude spéciale de l'État dans ce domaine. Cette conception trouve sa justification si l'on considère surtout d'une part dans la grande importance économique, sociale et éthique de l'assurance et, d'autre part, dans le danger du très grave préjudice dont est menacé le bienêtre populaire par l'abus de l'assurance, danger d'autant plus proche que sur ce terrain de la vie économique le citoyen intelligent même n'est, généralement, pas en état, sans l'aide d'autre part, de juger lui-même en connaissance de cause les compagnies auxquelles il doit se confier.

Ce n'est pas seulement le montant des capitaux consacrés à l'assurance et garantis par elle qui traduit le rôle important de l'assurance dans la vie économique; le montant total des capitaux assurés en Allemagne dépasse la somme de 150 milliards de marcs. Il faut considérer avant tout le rôle propre, important de l'assurance pour le bien du peuple et la vie éthique populaire, rôle qui la différencie essentiellement des autres branches économiques. De même que la protection — rendue possible par l'assurance — d'un seul contre les effets destructifs et ruineux de dommages élémentaires constitue une importante conquête de l'économie populaire et en même temps de la civilisation, de même la prévoyance, à réaliser par l'assurance, des preneurs d'assurance constitue en faveur des membres de leur famille un acte empreint d'esprit familial en même temps qu'un devoir, mais elle est aussi pour les prévoyants mêmes un moyen de se libérer de lourdes inquiétudes pour l'avenir et de s'assurer, pour le présent, du courage et du cœur à l'ouvrage. Dans ces circonstances et avec la conception propre au peuple allemand, de la mission de l'État, il est impossible de ne pas exiger de l'État d'autre intérêt et d'autres devoirs qu'à l'égard d'une autre branche libre quelconque de l'activité industrielle dirigée vers la production et l'offre de biens matériels pour les besoins populaires.

A cela s'ajoute cette circonstance que l'industrie de l'assurance doit pouvoir compter plus que toute autre branche économique sur la confiance de la population. Si cette confiance est déçue, toute l'assurance en subit le dommage.....

On n'admettra généralement pas que le particulier serait à même de juger exactement, par un examen faux, à quelle entreprise il doit donner sa confiance.

Bien des gens voient une protection importante et aussi suffisante du public dans le système de la publicité suivant lequel les conditions du fonctionnement et les résultats de l'exploitation sont rendus publics par des comptes rendus détaillés (compte d'exploitation, exposé de l'avoir, rapport annuel). Par là, pense-t-on, on rend possible et l'on provoque dans la plus large mesure la critique publique des établissements et de leur gestion, les opérations déloyales sont réprimées et il est offert au public avide d'assurance un moyen de s'orienter sûrement.

Que la publicité en ce sens soit en effet un facteur important pour maintenir l'assurance dans des voies saines et que, alliée à une surveillance d'État pratiquée rationnellement, elle puisse avoir des effets très salutaires, cela est incontestable; mais qu'elle suffise par elle-même à assurer cette fin, voilà ce qui est bien douteux. Même lorsque les publications des établissements fournissent toutes les données requises pour permettre aux experts de juger de la capacité de travail et de la solidité d'une entreprise, l'examen approfondi de l'ensemble de la situation d'un

grand établissement constitue un travail extrêmement difficile et long et il n'est nullement certain que de tels examens, faits de part intéressée et consciencieuse peuvent être établis à un degré suffisant pour éclairer l'opinion publique. En face de telles appréciations purement utiles à la chose, il s'en trouvera toujours qui, sous l'apparence d'objectivité désintéressée, poursuivent, au service de certains intérêts particuliers, la dépréciation d'un établissement, la louange réclame d'un autre.

A cela s'ajoute cette circonstance que les publications faites annuellement, suivant le mode usité par les établissements d'assurance, ne permettent, même à l'expert le plus habile, que de se faire une opinion très conditionnelle sur la confiance que l'on peut avoir en un établissement déterminé. C'est ainsi que pour des raisons multiples — si l'on ne veut renoncer tout à fait à la sollicitude de l'État pour un développement prospère et solide de l'assurance et à une protection spéciale des assurés — on est amené au système d'une surveillance matérielle des entreprises d'assurances, tel que la loi la prévoit. D'après cela, la surveillance ne s'exercera pas uniquement dans une direction formelle en surveillant l'observation des dispositions prescrites par la loi et les statuts. La surveillance devra plutôt, par des examens et des décisions de nature matérielle, empêcher la création d'établissements qui semblent d'avance ne pouvoir mériter la confiance; avoir constamment l'œil dans tous les établissements autorisés sur la marche des affaires et veiller à ce que l'on ne déroge pas au plan d'affaires approuvé à ce que dans la gestion il ne se produise pas d'abus qui soient dangereux pour les assurés et qui, d'une institution destinée à être d'utilité publique, fassent un établissement dangereux pour la généralité. Là où des modifications (par exemple changement de la nature des risques, du taux d'intérêt) l'exigent, la surveillance devra veiller à ce que par la transformation des bases techniques et financières de l'établissement son existence et sa capacité de travail ne soient pas compromises et enfin, dans les cas où malgré cela une dissolution ne peut être évitée, elle veillera à ce qu'il soit mis fin en temps utile à l'exploitation et à ce que la liquidation des affaires s'effectue sans dommage ou favoritisme pour quelques-uns en garantissant également les intérêts de tous les participants. Il ne sera pas inutile de faire ressortir que les États étrangers, qui ont introduit le même système, peuvent en montrer les bons résultats. Il en est ainsi de l'Autriche, de la Suisse, de l'État de New-York, etc. Les nombreux projets qui existent dans d'autres États, pour la Hongrie, la Suède, la Norwège, l'Italie, permettent tous de reconnaître que l'on considère la surveillance par l'État comme le meilleur système, quoiqu'il soit sans doute encore bien susceptible d'amélioration.

IV. *Le traitement des compagnies étrangères en général.*

En principe, le même droit existe pour les compagnies indigènes et pour les compagnies étrangères. Les prescriptions légales visant en premier lieu les établissements indigènes seront appliquées par analogie aux établissements étrangers (paragraphe 85). Cependant il est certaines dispositions peu nombreuses mais importantes et spéciales à ces derniers.

Ces exceptions dans le traitement n'apparaissent pas lorsque la compagnie étrangère est déjà autorisée, mais presque toujours dans l'acte de concession même et dans une révocation éventuelle. Cela est très explicable, absolument naturel et nécessaire. Car, dès qu'on admet que, en principe, une autorité de surveillance indigène a une certaine respon-

sabilité pour la gestion des établissements d'assurance opérant dans le pays, cette autorité doit être plus prudente à l'égard d'une entreprise ayant son siège propre hors des frontières du pays, dont elle ne peut donc, pour des raisons de droit d'état ou de droit des peuples, surveiller toute l'activité, qu'à l'égard d'une entreprise dont toute l'activité est concentrée plus ou moins exclusivement dans le pays. Une entreprise d'assurance est précisément, comme dit *von Knebel*, « non pas un conglomérat, mais un organiste, un tout composé certes de beaucoup de parties, mais uniforme, dont on ne peut enlever à volonté l'une ou l'autre partie.» Le démembrement d'une entreprise indigène en une partie indigène ou étrangère n'est donc pas praticable pas plus que la surveillance dans toutes ses parties d'une entreprise étrangère. Il faut donc chercher des compromis. Nous avons à considérer maintenant quelle voie le législateur allemand a choisie dans chaque cas particulier. Dans cet exposé, nous prenons pour point de départ les dispositions en vigueur pour les entreprises indigènes, attendu que ces dispositions constituent une base fixe pour la recherche de ce qu'il faut entendre par « règles analogues » pour les entreprises étrangères.

V. *La concession (l'autorisation) et ses hypothèses.*

Toutes les entreprises privées ayant pour objet l'exploitation d'affaires d'assurances (paragraphe 1) sont soumises aux dispositions sur l'autorisation d'exploiter les affaires (paragraphe 4). Les entreprises indigènes ont besoin de l'autorisation de l'Office Impérial de surveillance pour l'assurance privée (paragraphe 4).

Dans le seul cas où des établissements indigènes sont établis sur le territoire d'un seul état fédéral, l'autorité de cet État est régulièrement compétente au lieu de l'Office Impérial (paragraphes 2 et 3). Les entreprises étrangères doivent recevoir l'autorisation du Chancelier de l'Empire (paragraphe 86). Cependant, l'exploitation des affaires par des étrangers uniquement par voie de correspondance, ne tombe pas sous l'application de la loi; l'obligation de concession n'est applicable qu'à l'exploitation qui se fait dans le pays par des représentants, fondés de pouvoirs, agents ou autres intermédiaires (paragraphe 85).

Pour obtenir la concession, une demande en obtention doit être introduite par les établissements indigènes auprès de l'Office de surveillance, par les étrangers, auprès du Chancelier de l'Empire, les requérants doivent annexer à cette demande un plan d'affaires dans lequel se trouve un exposé de l'organisation de l'entreprise, détaillée de telle sorte que l'autorité concédante sera à même d'apprécier si la compagnie aura une capacité assez grande et assez durable pour faire face à ses engagements. Ce plan doit indiquer le but et la constitution (statuts) de la compagnie ainsi que le territoire où s'exercera son activité. L'exploitation territoriale peut notamment s'étendre soit à tout le territoire de l'empire, et ce cas, qui est la règle, est seul envisagé ici, ou bien à un ou plusieurs états fédéraux. Mais les établissements étrangers, lorsqu'ils ne pratiquent l'assurance que dans un seul État fédéral, sont également soumis à l'Office impérial de surveillance (paragraphe 91, section 1).

Il y a lieu de fournir en outre, comme éléments du plan d'affaires: le contrat de société sur lequel est basée l'entreprise, les conditions générales d'assurances et les bases techniques; les sociétés mutuelles doivent fournir aussi leurs statuts (paragraphe 4).

Ce que doit comporter le plan d'affaires est exactement prescrit. Il doit contenir ce qui suit (paragraphe 2) :

Les tarifs adoptés par la compagnie, l'exposé complet des principes pour le calcul des primes et de la réserve des primes, notamment le taux d'intérêt à employer et le montant de la charge de la prime nette, la déclaration « si et dans quelle mesure il sera fait usage, dans le calcul de la réserve des primes, d'une méthode d'après laquelle à l'origine la réserve des primes n'est pas consignée toute entière » (*Zillmer-Methode*), les tables de probabilité servant de base aux calculs, notamment pour la mortalité, les risques d'invalidité et de morbidité. En outre, on exige la production des formules servant au calcul de la prime et de la réserve des primes pour chaque nature d'assurance ; chaque formule doit être expliquée par un exemple numérique. Enfin, dans le cas où l'on traite des assurances à primes surélevées, il est nécessaire d'expliquer les principes, de quelle façon l'on procèdera en ce qui concerne la formation de la réserve des primes (paragraphe 2).

La loi prescrit également ce qui doit se trouver dans le contrat de société ou dans le statut. Il est requis par exemple d'indiquer les branches d'assurance qui seront exploitées, les principes présidant au placement de l'avoir et de spécifier si l'on traitera les seules opérations d'assurance directe ou si l'on traitera en même temps les opérations de réassurance (paragraphe 8, sections 1 et 2), etc....

On a déjà fait ressortir ci-dessus qu'en introduisant la demande en concession il faut indiquer les conditions générales de l'assurance. Or, la loi prescrit quelles dispositions doivent être prises dans ces conditions générales par les compagnies indigènes et étrangères (paragraphe 9).

D'après le texte de la loi, des dispositions doivent être prises en ce qui concerne :

1° les événements dont la survenance oblige l'assureur à une prestation et les cas où, pour des raisons spéciales, cette obligation doit être non avenue ou suspendue (à cause de déclarations inexactes dans la proposition, du chef de changements pendant la durée du contrat, etc....) ;

2° la nature, l'étendue et l'échéance des prestations incombant à l'assureur ;

3° la fixation et la prestation de la prime à payer à l'assureur par l'assuré et les conséquences juridiques d'un retard dans le paiement de la prime ;

4° la durée, notamment une tacite prolongation sur dénonciation ainsi que toute autre suspension totale ou partielle du contrat d'assurance et les obligations de l'assureur dans les cas suivant ristourne, rachat, transformation de l'assurance, reduction, etc.... ;

5° la perte du droit résultant du contrat d'assurance par suite de non-observation des délais ;

6° la façon de procéder en cas de contestations résultant du contrat d'assurance, le tribunal compétant et la désignation d'un tribunal d'arbitrage ;

7° les principes et la mesure d'après lesquels les assurés participent aux excédents ;

8° les hypothèses dans les assurances-vie sur le montant de paiements anticipés ou de prêts sur polices.

Les compagnies indigènes doivent être autorisées, s'il n'y a pas de motifs tout spéciaux pour refuser la concession. La loi cite comme tels : prescriptions illégales, sécurité financière insuffisante d'un établissement, garantie insuffisante des intérêts des assurés ou atteintes aux bonnes

mœurs (paragraphe 7). Pour obtenir l'autorisation, les compagnies d'assurance-vie doivent encore posséder la fortune juridique de la société par action, telle que la définit le Code de commerce allemand, ou reposer sur la mutualité, telle que la loi d'assurance la règle elle-même en détail (paragraphe 6). Cette disposition ne peut naturellement être appliquée strictement aux établissements étrangers de sorte qu'en ce qui concerne la forme de l'entreprise, le législateur allemand garantit à l'autorité concédante vis-à-vis des étrangers des droits qu'il lui refuse vis-à-vis des indigènes.

L'introduction de la demande en concession et des annexes en question est suivie d'une délibération orale qui est régulièrement basée sur un avis écrit (paragraphe 73). Trois membres de l'Office de surveillance et deux membres du « Beirat » prennent part à la délibération orale (paragraphe 73, section 1). Avant de prononcer un refus de concession on entendra les représentants des entreprises en cause et sur leur demande ils doivent être invités aussi à la délibération orale (paragraphe 73, 4e alinéa). Le refus doit être motivé; mais avant qu'il soit procédé à cet acte formel, le président de l'Office peut rendre un arrêt provisoire de refus. Si le refusé ne s'en contente pas il peut, endéans les deux semaines, recourir au procédé susdit (paragraphe 73, 6e alinéa). Un recours est également admissible contre la décision rendue dans toutes les formes (paragraphe 74). Tandis que l'Office de surveillance doit être considéré pour les entreprises indigènes comme autorité consultative et en même temps décisive, il n'est à l'égard des entreprises étrangères qu'une autorité consultative, puisque la décision est exclusivement l'affaire du Chancelier de l'Empire (paragraphe 86), contre la décision duquel aucun moyen juridique ne peut être mis en œuvre. Dans aucun cas le Chancelier de l'empire n'est tenu de concéder. L'autorisation du Chancelier de l'empire n'est possible que lorsque les conditions suivantes sont remplies:

1° le « Beirat » a été entendu;

2° l'Office de surveillance a émis, à la suite de cette audition, l'avis qu'il n'existe aucun des motifs qui seraient de nature à faire refuser la concession pour des compagnies indigènes;

3° l'entreprise étrangère a produit la preuve qu'elle peut, dans son pays et sous son nom, acquérir des droits, contracter des engagements, ester en justice soit en demandant, soit en défendant;

4° l'entreprise s'engage à acquérir, dans l'empire allemand, une succursale et à y nommer un fondé de pouvoirs en chef avec domicile sur le territoire de l'empire (paragraphe 86). Lors de toute admission de compagnie étrangère l'autorisation de fonctionner est naturellement subordonnée au dépôt d'une caution qui peut être exigée aussi de compagnies indigènes (paragraphes 7, 2e alinéa).

Si toutes ces conditions sont remplies, le chancelier de l'empire peut autoriser l'entreprise étrangère, mais il n'y est pas obligé. Ainsi, il a la faculté lorsque toutes ces conditions sont remplies de refuser l'autorisation totale ou de la limiter en partie, notamment de ne pas admettre la compagnie étrangère pour l'étendue de tout l'empire, mais seulement pour quelques-unes de ses parties.

Une autre prestation obligatoire de sécurité consiste en ce que le fonds de réserve de primes pour les assurances conclues dans le pays doit, sur décision plus spéciale de l'Office de surveillance, être consignée de telle façon qu'il ne peut en être disposé qu'avec le consentement de l'Office (paragraphe 90, 2e alinéa).

Les entreprises admises ne peuvent conclure de contrats d'assurance, à l'intérieur du pays, qu'à l'intervention de leurs fondés de pouvoirs demeurant dans le pays (paragraphe 87).

Le siège de la succursale dans l'empire détermine absolument la juridiction (la dépendance du tribunal) dans tous les procès qui surgissent contre l'entreprise pour les affaires conclues dans le pays (paragraphe 89).

Les entreprises indigènes, à moins qu'elles ne fassent une demande contraire, sont admises, par l'octroi de la permission, sans limitation de temps ou d'espace, pour le territoire de tout l'empire (paragraphe 5). Pour les entreprises étrangères il appartient au Chancelier de décider.

D'après cet exposé, il semblerait que le législateur ait procédé avec une espèce de méfiance contre les entreprises étrangères d'assurance. Mais c'est là une conception erronée. En réalité, il ne s'agit dans la loi que de formuler les principes de réciprocité et de rétorsion universellement admis dans le droit des peuples. Car le Chancelier de l'empire ne dispose librement que lorsqu'une procédure, prescrite par la loi, indépendante du chancelier de l'empire a eu lieu et que cette procédure a conduit à un avis de l'Office de surveillance, dans lequel la conformité avec les ordonnances légales, prescrites également pour les compagnies indigènes, est prononcé. Lorsqu'il existe un pareil avis de l'autorité experte en la matière, le chancelier de l'empire, si les compagnies allemandes sont traitées à l'étranger comme les compagnies indigènes, usera naturellement, avec bienveillance, de son autorité. Des conventions internationales peuvent certes limiter le libre arbitre du chancelier de l'empire, mais non la procédure qui doit précéder le jugement.

Il ressort clairement de la loi qu'il ne tient qu'aux compagnies étrangères d'obtenir en Allemagne un traitement entièrement semblable à celui qui est appliqué aux compagnies indigènes, notamment lorsqu'elles remplissent les conditions prescrites, lesquelles, au fond, ne sont en général pas plus sévères pour elles que pour les indigènes. Si elles ne le jugent pas nécessaire, si elles sont d'avis que les autorités d'État allemand doivent accorder plus de confiance à une société étrangère qu'à une société allemande et si, pour cette raison, elles ne remplissent pas les conditions mûrement pesées, le chancelier de l'empire ne peut, malgré son libre arbitre, les autoriser, précisément parce que le conseil consultatif des assurances et l'Office de surveillance ne sont pas à même de constater l'accomplissement des conditions prescrites. Car le chancelier de l'empire est, lui aussi, soumis à la loi.

Contrairement à ce qui se passe dans d'autres sphères professionnelles, les compagnies allemandes d'assurances ont, lors de la discussion des projets de loi, désiré le meilleur traitement possible pour les compagnies étrangères, tandis que le législateur était disposé à user d'une assez grande prudence. Ainsi, par exemple, le projet du Gouvernement contenait à l'origine cette disposition que la moitié de la réserve des primes pour les assurances conclues en Allemagne par des compagnies étrangères devait être placée en créances écrites contre l'empire ou un état fédéral, prescription qui aurait correspondu, en réalité, aux principes autrefois en vigueur en Prusse. La commission du Reichstag tenant compte de l'énergique requête des assureurs allemands a, pour éviter l'introduction de mesures réciproques, biffé cette disposition.

Je ne crois pas que les mesures prises à l'égard des compagnies étrangères aient été dictées par l'intention d'exercer une espèce de protectionnisme — car l'assurance-vie allemande n'en a nul besoin et ne la désire

pas — mais uniquement par le sentiment d'une haute responsabilité à l'égard du public indigène assuré; car comment une autorité allemande, qui ne peut autoriser une compagnie allemande qu'en cas d'accomplissement de dispositions précises, pourrait-elle, sans preuves et sans examen approfondi, autoriser une compagnie étrangère, qui dans sa patrie n'est peut-être pas soumise à des conditions d'admission.

VI. *Rapports entre compagnies et autorités de surveillance après l'autorisation.*

Après leur admission, les entreprises étrangères sont soumises comme les indigènes à l'Office de surveillance et toutes les dispositions de la loi sont également applicables à l'entreprise étrangère et à l'entreprise indigène (paragraphe 91, 1er alinéa). L'autorité de contrôle fait connaître officiellement l'admission pour les compagnies étrangères en nommant les fondés de pouvoirs principaux (agents généraux). Ensuite doit avoir lieu l'enregistrement au registre de commerce (paragraphe 30).

Une conséquence du caractère fédéral de l'empire allemand est cette autre prescription que le bureau de chaque entreprise d'assurance — abstraction faite de celle qui ne fonctionne que sur le territoire d'un seul état fédéral — doit notifier aux autorités centrales de chacun des États fédéraux dans les limites desquelles elles font des opérations, le commencement de l'exploitation (paragraphe 115, 1er alinéa). L'autorité centrale de chaque état fédéral peut exiger en outre que pour cet État, dans le cas où l'entreprise n'y a précisément pas son siège, il soit commissionné spécialement un agent général. Mais pour cela il faut une exploitation relativement considérable précisément dans l'État en question. Pour plusieurs états fédéraux ensemble il n'est souvent besoin que d'appointer un agent général commun. Celui-ci doit avoir sa demeure dans un des États fédéraux en question et est censé posséder des pouvoirs étendus de représentation. Cette compétence ne s'étend cependant pas à la conclusion de contrats d'assurance; pour cela, on doit plutôt s'adresser à la direction de la compagnie pour assentiment (paragraphe 115, 2e alinéa). Les obligations de l'autorité de contrôle sont, après autorisation, très étendues. Comme il incombe à l'autorité de surveiller toutes les opérations des compagnies, spécialement des principes des prescriptions légales et la conformation au plan d'affaires, elle a, pour pouvoir s'acquitter de sa tâche pleine de responsabilité, reçu le pouvoir de prendre tous arrangements de nature à amener une conformité durable de l'exploitation des affaires, avec la loi et le plan d'affaires, ou d'écarter des vices qui mettent en danger les intérêts des assurés, ou par lesquels l'exploitation des affaires entre en conflit avec les bonnes mœurs (paragraphe 64, 1er et 2e alinéas).

Outre ces attributions générales, la loi accorde à l'autorité de surveillance en particulier toute une série de droits spécialement énumérés. En ce qui concerne ces derniers, il convient de dire que les compagnies étrangères pourraient être soumises à un contrôle moins sévère que les compagnies indigènes, attendu que les dispositions pour les indigènes s'étendent à leur exploitation totale, alors que les dispositions concernant les compagnies étrangères ne peuvent naturellement être appliquées avec une égale sévérité qu'à l'exploitation en Allemagne.

Les droits particuliers de l'autorité de contrôle sont: le droit d'examiner en tout temps la gestion et la situation de fortune aux fins d'acquérir la concordance des comptes et rapports publics avec les écritures;

le droit de vérifier en tout temps l'existence des réserves, des placements et de l'administration prescrits; le droit de demander tout renseignement désirable sur l'exploitation des affaires et la situation de fortune des propriétaires, gérants, fondés de pouvoirs et agents d'une entreprise, uniquement les fondés de pouvoirs domiciliés en Allemagne lorsqu'il s'agit des entreprises étrangères; le droit d'inspecter tous registres, documents et écrits, importants pour l'appréciation de l'exploitation et de sa situation de fortune; le droit d'envoyer un représentant à toutes les assemblées et séances des entreprises qui ont un conseil de surveillance, une assemblée générale ou des organes sociaux analogues; le droit pour les délégués envoyés à l'assemblée d'être entendus en tout temps; le droit de convoquer des assemblées et séances et de demander la mise à l'ordre du jour d'objets de discussion et de décision et, en cas de refus, de faire elle-même la convocation aux frais de l'entreprise (paragraphe 65, 1er, 2e et 3e alinéas); le droit de surveillance lors de la liquidation ou de toute autre cessation de l'exploitation (paragraphe 66). Pour le cas de faillite de l'entreprise d'assurance, des compétences spéciales sont également réservées à l'autorité de surveillance. Sur sa proposition, la faillite doit être ouverte; et une proposition d'ouverture ne peut émaner que de l'autorité de contrôle. Cette prescription ne s'applique naturellement pas directement aux entreprises étrangères.

Le bureau de la Compagnie doit, dès que celle-ci devient insolvable, ou dès que le bilan annuel ou le bilan provisoire indique un déficit, en faire la déclaration (paragraphe 68). Mais pour prévenir dans certaines circonstances et dans l'intérêt des assurés la faillite d'un établissement en souffrance, l'office de contrôle a reçu le pouvoir de rendre possible, par des mesures d'assainissement, l'exécution des assurances entreprises qui auraient été en danger sans ces mesures. En pareil cas, l'autorité de surveillance peut prendre les dispositions nécessaires, et requérir les représentants de l'entreprise d'opérer dans un temps donné la modification des bases des opérations ou d'écarter de toute autre façon les vices existants. L'autorité peut, en particulier, prohiber certains modes de paiement, rachat ou prêts sur polices ou paiements anticipés sur polices; au besoin, elle peut, à l'exemple du droit anglais (Act to amend the law relating to Life Assurance Companies du 9 août 1870, n° 22), réduire de $33\frac{1}{3}\%$ les engagements existants d'une entreprise d'assurances sur la vie, résultant de ses assurances (paragraphe 69).

Le droit d'interdire l'exploitation, dans le cas où la compagnie se rend fréquemment coupable d'agissements contraires à la loi ou au plan d'affaires approuvé, ou dans le cas où dans l'examen de la gestion ou de la situation de fortune il apparaît de si graves abus que les intérêts des assurés seraient en danger si l'exploitation était continuée, ou enfin, si l'exploitation est contraire aux bonnes mœurs (paragraphe 67, 1er et 2e alinéas). Une telle disposition résulte de la nature de la chose attendu que les autorités indigènes ne sont pas à même d'influencer l'exploitation au siège de l'entreprise.

Pour toute modification au plan d'affaires de même que pour tout transfert de portefeuille, il faut la déclaration et l'agréation (paragraphes 13 et 14). Il les faut encore pour l'acquisition de terrains par des compagnies indigènes pour autant qu'il ne s'agisse pas de l'acquisition en vente forcée de terrains hypothéqués par les compagnies (paragraphe 54). Pour les personnes juridiques étrangères il faut légalement, par contre, l'autorisation des États fédéraux intéressés. En ce qui concerne la comptabilité et la reddition des comptes en général (paragraphe 55), le calcul,

l'examen et le placement de la réserve des primes en particulier (paragraphe 55 et 61), il n'y a pas lieu de faire rapport en ce mémoire.

Pour l'observation de ses ordonnances qu'elle a édictées en vue d'écarter des défauts, l'autorité de contrôle a le droit d'imposer des amandes jusqu'à 1,000 marcs (paragraphe 64, 3e alinéa). Elle peut aussi prononcer cette pénalité lorsque la compagnie refuse de lui transmettre ses livres ou que les renseignements demandés par elle ne lui sont pas donnés (paragraphe 65, 2e alinéa).

Des pénalités consistant en amendes ou en détention peuvent être prononcés dans les cas suivants:

1° déclarations sciemment fausses en vue d'obtenir la concession ou la prorogation de concession, ou en vue d'agréation d'un changement (paragraphe 105);

2° exploitation d'affaires sans autorisation (paragraphe 108);

3° omission de déclaration de la part du bureau, etc. (paragraphe 109);

4° contravention consciente aux prescriptions concernant la gestion de l'avoir ou déclarations sciemment fausses sur cet objet devant l'organ suprême:

a) de la part des membres du bureau (paragraphes 106–111);

b) de la part des membres du conseil de surveillance (paragraphes 106–111);

c) de la part d'un liquidateur (paragraphes 106–111);

d) de la part d'un membre d'un pareil organe (paragraphes 106–111);

e) de la part d'un expert (paragraphe 107);

5° infidélité des membres du bureau, etc. (paragraphe 110);

6° délit de faillite (paragraphe 112 et paragraphes 239–241 de l'ordonnance sur les faillites).

VII. *Composition et procédure de l'autorité de contrôle.*

L'autorité d'empire exerçant le contrôle qui porte la dénomination d'Office impérial de contrôle pour l'assurance privée et a son siège à Berlin comprend un président et des membres permanents et non permanents, en nombre déterminé, nommés sur la proposition du Conseil fédéral, par l'empereur, ou élus par le Conseil fédéral (paragraphe 70).

La procédure devant l'Office n'est réglée qu'en ses traits fondamentaux par la loi d'empire: oralité de la procédure, nomination de trois membres de l'Office et de deux du Conseil suppléant (paragraphe 73); possibilité d'un recours judiciaire ou plainte contre la plupart des décisions de l'Office (paragraphes 74, 75, 77), droit de l'Office à l'audition de témoins et autres analogues (paragraphes 78, 79). Les ordonnances plus détaillées sur la procédure sont réglées par arrête impérial (paragraphe 80).

L'empire supporte les frais de l'Office de contrôle. Cependant, il est perçu, des entreprises d'assurances, des frais sous forme de cotisations annuelles. Le maximum a été fixé à 1 °/₀₀ de la recette brute de primes. Une autre mesure de répartition peut être fixée par le Conseil fédéral après audition du « Beirat.» Grâce aux frais « environ la moitié des dépenses permanentes fixées pour l'Office dans le dernier budget économique de l'Empire seront rapportés.» L'empire seul supporte les frais de 1er établissement. Les frais en cas de propositions ou de plaintes non fondées peuvent être imposés aux réquérants (paragraphe 82).

Les publications annuelles de l'Office sur la situation des entreprises d'assurances soumises à son contrôle ainsi que sur ses observations dans le domaine de l'assurance peuvent devenir d'un haut intérêt scientifique et pratique; il en est de même de sa publication des principes juridiques et administratifs qui président à ses opérations (paragraphe 83).

Est prévue, en outre, la convocation facultative de commissaires selon les besoins et pour faciliter les relations d'affaires de l'Office de contrôle avec les entreprises soumises à sa surveillance (paragraphe 71).

A côté de l'Office il est organisé un « Beirat,» Conseil auxiliaire d'assurance, en partie autorité juridique et en partie consultative composée d'experts dont les membres « représentants considérés et expérimentés de l'assurance allemande » exercent leurs fonctions à titre honorifique. Le « Beirat » prussien a servi de modèle ici (paragraphe 72).

VIII. *Prescription concernant les rapports avec les assurés.**

Il ne peut, suivant prescription formelle de la loi (paragraphe 9, 2e alinéa), être dérogé aux conditions générales d'assurance au détriment de l'assuré que pour des raisons spéciales, et seulement lorsque ces dérogations ont été formellement signalées à l'assuré avant la conclusion du contrat et qu'il y a donné son consentement par écrit. Avant la conclusion du contrat, un exemplaire des conditions générales de l'assurance doit être remis au preneur d'assurances qui doit témoigner par écrit que cela a été fait. Pour les sociétés industrielles, la production des statuts est également prescrite (art. 10, 1er alinéa). En outre, chaque société doit, sur demande, remettre à chaque assuré un exemplaire du bilan et du rapport annuel. L'autorité de surveillance peut arrêter les dispositions plus détaillées sur la nature des publications du rapport annuel (paragraphe 55, 3e alinéa).

IX. *Sociétés mutuelles.*

Avant la promulgation de la loi actuelle, les sociétés d'assurance reposant sur le principe de la mutualité, abstraction faite des coopératives, manquaient, dans presque tous les états allemands, de réglementation légale particulière. Les situations juridiques étaient déterminées d'après les règles des divers droits publics généraux sur les corporations et sociétés. Il y avait des sociétés mutuelles avec et d'autres sans le caractère de la personnalité juridique.

La loi nouvelle a créé un droit uniforme pour les sociétés mutuelles d'assurances et la disposition traitant du droit de ces sociétés (paragraphes 15-53) a reçu l'approbation la plus unanime.

Le droit des sociétés mutuelles d'assurances est réglé, autant que possible, en conformité du droit des sociétés par actions (code de commerce allemand, vol. 11, paragraphes 178-324).

La loi distingue entre les sociétés mutuelles ordinaires ou grandes sociétés enregistrées, et les petites sociétés, qui ont une sphère d'action étroitement limitée quant aux affaires, aux lieux ou à leur clientèle (paragraphe 53), telles que Caisses de décès, etc. ... En général, les prescriptions pour les grandes sociétés s'appliquent également à ces petites sociétés; seulement celles-là ne seront pas soumises à l'enregistrement comme celles-ci, et le droit des sociétés, comme le code civil l'a réglé (paragraphes

* Un projet de loi sur le contrat d'assurances a été publié au mois du mai 1903.

24-53), leur est applicable d'une façon analogue. Ces exceptions en faveur des petites sociétés seront intentionnellement négligées dans l'exposé suivant de la situation de droit privé que nous décrirons fort sommairement.

A l'avenir, les sociétés mutuelles reçoivent, en même temps que la concession, la capacité juridique: il ne faudra donc plus, comme jusqu'à présent dans les États où existe le système de concession, un double octroi (paragraphe 15). La constitution des sociétés est qualifiée « statut » (paragraphe 17); elle doit indiquer la forme et le siège de la société (paragraphe 18); elle doit contenir des dispositions sur le commencement, la fin du sociétariat (paragraphe 20); sur la formation et l'amortissement d'un fonds de fondation, régulièrement requis et la plupart du temps payable en espèces, fonds qui doit servir à couvrir les frais d'établissement de la société ainsi que le fonds de garantie et d'exploitation (paragraphes 22, 23); sur la nature des cotisations en indiquant si, et quels versements anticipés ou ultérieurs doivent être effectués (paragraphe 24), et comment ils seront stipulés, de plus sur l'emploi de tous autres moyens de couverture, il sera pris des dispositions par cette « constitution » (paragraphe 27); en outre elle doit déterminer la formation d'un fonds de réserve (paragraphe 37) et indiquer le mode de partage des excédents; abstraction faite de toutes exigences correspondant aux droits des actions et outre des dispositions sur la formation des organes de la société (paragraphe 28): Forme des publications de la société (paragraphes 30 et suivants) (devoir de présentation à l'inscription au registre du commerce, etc. ...) sur la formation des organes de la société sont requises.

La société d'assurance a un bureau (paragraphe 34), un conseil de surveillance (paragraphe 35) et un organe supérieur correspondant à l'assemblée générale dans les sociétés par actions (paragraphe 36), consistant en l'assemblée de tous ou d'une partie des membres. Les fonctions des organes et leur situation juridique correspondent généralement à celles des sociétés par action. L'avoir de la société garantit exclusivement les dettes de la société (paragraphe 19). Ni pendant l'existence de la société, ni en cas de faillite de celle-ci, les membres ne sont responsables directement envers les créanciers de la société, mais seulement à l'égard de la société (paragraphes 19-50). En règle générale, les modifications statutaires ne peuvent être effectuées que par l'organe supérieur (paragraphe 39); elles sont soumises à l'enregistrement ainsi qu'à l'agréation (paragraphes 40, 41).

La dissolution de la société a lieu par expiration de la durée prévue au statut (paragraphe 42) ou par décision de l'organe suprême, pour laquelle la majorité des $\frac{3}{4}$ et l'assentiment de l'autorité de contrôle sont requises (paragraphe 43); la dissolution par fusion est également prévue (paragraphe 44). Pour la liquidation de la société, il existe des dispositions analogues à celles en vigueur pour les sociétés par action (paragraphes 46 et 47).

En cas de faillite d'une société d'assurances le droit commercial est également applicable quant à l'ouverture, tandis que pour les versements à faire ultérieurement les prescriptions correspondantes du droit des coopératives sont appliquées (paragraphes 49-52).

En principe, les cotisations des membres et la prestation de la société à ceux-ci doivent, à hypothèses égales, être déterminées d'après des principes égaux et les seuls membres de la société peuvent s'assurer chez elle. Mais pour autant que les statuts le permettent expressément,

les sociétés ont la latitude de conclure aussi, avec des non-membres, des assurances contre primes fixes (paragraphe 21) ; alors on a ce qu'on appelle une société mixte.

C'est une question extrêmement difficile que celle de savoir jusqu'à quel point ces dispositions légales sur le droit des sociétés mutuelles indigènes entrent en ligne de compte pour les établissements étrangers. Car ici il y a lieu d'appliquer non seulement des dispositions de droit public, mais aussi de nombreuses dispositions de droit privé. Mais cette discussion qui est du domaine du droit international privé dépasse le cadre de ce travail.

X. *Application de la loi aux compagnies existantes.*

D'après les principes juridiques généraux, les lois nouvelles n'ont point d'effet rétroactif. La loi sur l'assurance privée consacre également ce principe.

Les dispositions sont donc généralement et sans restriction applicables aux seules entreprises établies après le 1er janvier 1902. Pratiquement, pour que la loi fût utile aux sociétés existantes, ce principe devrait être violé dans une certaine mesure.

Toutes les entreprises autorisées au 1er janvier 1902, suivant les lois du pays, peuvent se passer d'une concession renouvelée conformément à la loi (paragraphe 92), mais elles peuvent la solliciter, parce qu'elles peuvent avoir des raisons dans certaines circonstances, pour se libérer d'inconvénients qui leur ont peut-être été imposés lors de leur concession antérieure. Toutes les compagnies tant indigènes qu'étrangères sont depuis ce jour soumises au contrôle dont l'exploitation s'étend au-delà des limites d'un État fédéral de l'Office impérial, tandis que les autres entreprises allemandes sont soumises au contrôle des autorités de leur État (paragraphe 93). A l'expiration d'une concession octroyée seulement pour une période déterminée, suivant la loi du pays, la nouvelle autorisation doit être demandée à l'autorité de contrôle (paragraphe 94), tandis qu'en cas de concession accordée seulement à titre révocable, la libre révocabilité échoit à l'autorité de contrôle (paragraphe 95). En sollicitant la concession d'après les dispositions actuelles, l'entrepreneur se libère de ce lien. Ces deux dispositions (paragraphes 94, 95) s'appliquent à toutes les compagnies.

Pour rendre possible le contrôle continu de l'exploitation il était nécessaire de stipuler l'obligation des compagnies existantes en ce qui concerne l'exposé de leur plan d'affaires sur requête de l'autorité, endéans un délai déterminé (paragraphe 98). L'office de contrôle a, déjà dans le courant de l'année 1901, usé de ce droit à lui conféré, attendu que ce paragraphe, à côté d'autres, est entré en vigueur dès le 1er juillet 1901.

Les prescriptions concernant la réserve des primes dans l'assurance-vie, comme dans l'assurance-maladie et l'assurance-accidents, sont applicables aux assurances conclues après le 1er janvier 1902, en partie immédiatement, en partie après un délai de 3 ou 5 ans, attendu que, suivant l'exposé des motifs, « il semble convenable d'user de ménagements à l'égard des situations d'affaires et juridiques existantes.»

Exceptionnellement, une prorogation de délai peut être accordée (paragraphe 99). Mais l'action immédiate de l'autorité est permise (paragraphe 100) lorsqu'elle juge « insuffisante la réserve des primes pour assurer l'accomplissement durable des obligations afférentes aux contrats d'assurances.» Elle peut alors, et sous réserve de mesures plus

sévères, fixer un délai pour qu'un remède soit apporté aux vices de fonctionnement.

Il fallait prendre des mesures spéciales pour les sociétés mutuelles. Celles possédant la capacité juridique — abstraction faite des coopératives et de certaines unions saxonnes analogues (paragraphes 102) — sont, exception faite des prescriptions relatives à la formation d'un fonds de fondation et de réserve, immédiatement soumises aux prescriptions nouvelles, les paragraphes correspondants ne sont pas applicables aux sociétés sans capacité juridique. Mais ces sociétés peuvent être invitées par l'autorité de contrôle à solliciter la concession dans le délai de 6 mois au moins; en cas de refus, l'autorité de contrôle peut interdire l'exploitation.

La loi n'est plus applicable aux entreprises en liquidation (paragraphe 103).

XI. *Fin — Conséquences et desiderata.*

Notre essai d'exposé succinct et systématique des principes juridiques et économiques de la loi allemande d'empire du 12 mai 1901 montre que le controle de l'État en Allemagne relève des principes cités sous le n° 4 du 13e objet à l'ordre du jour provisoire du Congrès de New-York, attendu que la loi:

1° exige la publicité;

2° cherche à garantir la solvabilité;

3° coopère d'une façon décisive dans les méthodes d'affaires des compagnies.

On ne prévoit pas d'ici à longtemps de modification à la loi. Il y a donc lieu de tenir compte des situations données, telles que nous les avons exposées.

A un point de vue international semblent s'imposer:

1° l'étude continue de l'assurance privée dans tous les États civilisés, en vue d'amener une appréciation aussi équitable et exacte que possible de la situation des compagnies d'assurances dans les différents pays civilisés entre eux et comme moyen d'y parvenir;

2° l'organisation d'une collection de toutes les lois en vigueur pour l'assurance privée en textes exacts et authentiques allemand, français et anglais, par les soins du Comité Permanent des Congrès Internationaux d'Actuaires;

3° à titre subsidiaire la mise à l'ordre du jour de tous les congrès futurs des progrès dans le domaine de la législation des assurances dans tous les États civilisés.

ON THE PROVINCE OF STATE SUPERVISION OF LIFE INSURANCE COMPANIES.

BY

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The relations between life assurance companies and the governments of the respective countries in which they operate have already been considered at two previous congresses—those of Brussels, in 1895, and of London, in 1898. The outcome, I think all will agree, has been the accumulation of a vast amount of interesting information, recorded in the Proceedings of these congresses, as to the practice of life insurance in different countries, and the elucidation of the fact that, however much the practice may differ, and however various may be the legal regulations that are in force, all are agreed that life assurance is a business of so sacred a character, and involving issues so important to the national welfare of each country, that it must be the subject of special legislation in order to safeguard the interests of the assured. It is their savings in the shape of premiums and their accumulations which constitute almost the entire resources of every life assurance company. As a rule, the amount of paid-up capital embarked in the business bears but a small proportion to the accumulations of the assured.

The national importance of the institution of life assurance may be illustrated by the magnitude of the operations of the companies carrying on business in the United Kingdom. Taking the last returns furnished to the British Board of Trade, and leaving out of account the business transacted in the country by foreign and colonial companies, of which the present law does not require any returns to be given,* the total amount assured by British companies, transacting ordinary business alone, amounts to the huge sum of £661,361,442 (re-assurances deducted), according to the most recent valuation returns, whether annual or quinquennial, sent in by various companies. In addition to the above, there are industrial assurances in force to the amount of £207,547,153. It cannot be a subject of unconcern to any government that its citizens should have made provision for the future to so large an extent, and that the security for the eventual payment of the sums assured, as they mature, should be guaranteed by the solvency and sound investments of the companies that underwrite the contracts.

It is true that Mr. R. P. Hardy, an eminent authority, who is as well-known and as highly respected in the United States and in the British Colonies as he is at home, said in the discussion on Mr. King's paper "On Legislation Affecting Life Assurance Companies," read before the Institute of Actuaries in the year 1891, "that he claimed on behalf of a most important trade—it might almost be called a trust—as much liberty as the late Mr. John Stuart Mill laid down in his treatise,

* For practical purposes, the amount of business transacted abroad by British companies may be taken at the present time as a fair set-off against this item.

the most unrestricted liberty to conduct their affairs, so far as they did not interfere with the liberty of others—in a word, a liberty not merely to manage, but, if they chose, to mismanage their affairs." But we must take care not to give this passage a wider application than was intended. Mr. Hardy had no fault to find with the existing British Assurance Law, and had mainly in his mind further severe restrictive measures, which he feared might be introduced. If the passage were to be applied generally, then I would take leave to point out that it ignores the peculiar nature of the life assurance contract, which does not come to a termination, like the affairs conducted by a bank, at the end of short periods—probably limited in most cases to months—but endures for a long time, and in most cases for the whole lifetime of the assured, and that the passage also claims, as far as proprietary assurance companies are concerned, the right of companies to mismanage not their own but other people's affairs. When we recollect that it is quite possible that a life assurance company may have only a small paid-up capital—say £5,000 or £20,000—and that its accumulations, arising from the savings of the assured, may reach £5,000,000 or £10,000,000, I do not think that any one would claim that the contributories of the few thousand pounds had a vested and inalienable right to mismanage the affairs of those who had contributed so many millions.

Moreover, the interference of government to provide for the security of the savings of the people is justified by the doctrines of political economy, as propounded even in a free trade country like England by leading writers on the subject. In this connection I may be allowed to quote the following passage from "The Principles of Political Economy," by the late Henry Sidgwick, professor of political economy at the University of Cambridge (edition of 1901, pp. 416-417):

"As the appliances of life become more elaborate and complicated through the progress of invention, it is only according to the general law of division of labor to suppose that an average man's ability to judge of the adaptation of means to ends, even as regards the satisfaction of his every-day needs, is likely to become continually less. No doubt an ideally intelligent person would, under these circumstances, be always duly aware of his own ignorance, and would take the advice of experts. But it seems not unlikely that the need of such advice, and the difficulty of finding the right advisers, may increase more markedly than the average consciousness of such need and difficulty, at any rate where the benefits to be obtained or the evils to be warded off are somewhat remote and uncertain, especially when we consider that the self-interest of producers will in many cases lead them to offer commodities that *seem* rather than *are* useful, if the difference between seeming and reality is likely to escape notice.

"How far government can usefully attempt to remedy these shortcomings of self-help is a question that does not admit of a confident general answer. We may, however, notice certain kinds of utility—which are, or may be, economically very important to individuals—which government, in a well-organized modern community, is peculiarly adapted to provide. Complete security for savings is one of these."

These words are pregnant with meaning and with wisdom to all those who are acquainted with the history of life assurance.

Having then at previous congresses arrived at a general agreement that interference of some sort on the part of government with the business of life assurance is necessary in the interests of the assured, we are now invited at this Congress to indicate more precisely what are the limits of government interference that are considered desirable. And in

this respect, when we come to consider the matter, I think it will be found that there is more agreement between the representatives of different countries than would at first sight seem to be the case. Even as regards the question of supervision, the difference of opinion that exists between British actuaries and those of a number of other countries does not relate to the necessity of supervision itself, about which all are agreed, but to the mode of exercising it—whether by the government or the public—and the extent to which the supervision may be efficiently carried. It is not then a question of principle that separates us, but one of detail only—albeit an important one—about which each of us may legitimately retain our own opinion.

I will first of all endeavor to set out the functions which, all are agreed, must necessarily devolve on the government, or the duties which, in my opinion, a common agreement is likely to be arrived at in assigning to the government. And here I must premise that, although requested by the Council of the Institute to prepare this paper for the Congress, I have been left perfectly untrammeled, and the Institute is in no way cognizant of or committed to any views I may bring forward. These must be accepted simply as the expression of my own individual opinions.

Section A.

I submit that it must be accepted as a principle that all life assurance companies should be empowered to carry on their business by the grant of a concession from the government of the country or countries in which the business is carried on. Of course, a concession would be granted only on certain conditions, and non-compliance with those conditions would involve the withholding of the concession. We do not, in England, like the name or the idea of a concession, but if the thing exists it is of no use quarrelling with the name, and it is better to look facts in the face and recognize them. Now since the passing of the Life Assurance Companies' Act of 1870 all life companies in Great Britain are required to make certain returns of their business to the Board of Trade, and these returns must be prepared in certain forms specified in the act, and the Board of Trade is required to "lay annually before Parliament the statements and abstracts of reports deposited with them during the preceding year" (Clause 24, Act of 1870); so that if a case arose of any defaulting company, it would come before Parliament to be dealt with. Moreover, no new company is authorized in the United Kingdom until it shall have deposited the sum of £20,000 with the Accountant-General of the High Court of Justice, the said sum remaining the property of the company, which receives the income therefrom, and is entitled to the return of the deposit as soon as its life assurance fund, accumulated out of premiums, shall have amounted to £40,000. I hold that this is virtually a concession from the government to carry on the business, but the non-recognition of the fact has led to the existence of several imperfections in the act. For instance, although the Board of Trade has power, after due notice given, to order the winding-up of any company which makes default in complying with the requirements of the act, it can only do so "upon the application of one or more policy-holders or shareholders," so that the action of the government is paralyzed, unless Parliament chooses to act specially in any particular case. The principle of a concession was not seized. Then again, it is difficult to see on what principle the exaction of a deposit can be required from new companies only. Looking at this provision of the act in all its naked simplicity, it can only be regarded as a restraint on trade, and, as such, contrary to the

spirit of British legislation generally. The fact is that the Act of 1870 was passed in a moment of panic, after the failure of one large company, and, as all such legislation is apt to do, it was designed to meet only the difficulties that had arisen, without consideration or recognition of underlying principles.

Assuming that the principle of a concession is accepted as necessary before a life assurance company is allowed to carry on its business, I should propose the following as the conditions on which such concession should be granted:

(1) The deposit of a moderate fixed sum to be required from all companies, whether home, colonial, or foreign, which carry on business in the country.

The *amount* of this deposit must be left to each government to fix as it thinks fit; in England we may well allow it to remain at the present figure of £20,000, but the deposit must be recognized as the property of the company, which should receive the income therefrom, and be allowed to choose the security from among a list of specified trust securities in which the money should be invested, and to vary the same from time to time. I cannot see that there is any hardship in requiring a moderate deposit of this kind from all companies, no matter how rich they are, and it would carry with it the advantage of dealing out equal treatment to all companies, whatever their place of origin.

A separate department of the Board of Trade or other government office should be instituted to see to the receipt, investment, or exchange of deposits, and the remittance of the dividends thereon to the companies. The department would also perform any other duties laid upon the government in terms of the law, and it would be reasonable, in payment of these services, for the government to be authorized to collect from each company a moderate sum toward the defrayal of the expenses of the office, such sum not to exceed in any case 5 per cent. of the income received from the investment of the deposits, assuming that they were all invested at a uniform rate of 3 per cent.

(2) All companies to be required to send to the department copies of the statutes or charters of incorporation under which they are established, as well as of their laws and regulations; and it should be the duty of the department to see that there is nothing in these statutes which would prevent the company legally complying with any requirements of the law of the country in which it proposes to carry on business.

In particular, the department should see that there is nothing in the statutes of a company that gives any particular section of the policy-holders a privileged right to any portion of the assets of the company, and the grant of any such exclusive rights, or the entrance of a company into or its continuance in any foreign State whose laws require such exclusive rights to be given, should involve the refusal or the withdrawal of the concession. The company is one and indivisible, and the investments constituting the assurance fund must be held for the benefit of all the assured alike, without any special lien being conferred on any particular class of policy-holders, or on the assured in any particular country. It should be unnecessary to labor this point after the closely reasoned and convincing papers of MM. Adan and Le Jeune, submitted to the London Congress, and I should not have specially referred to it were it not that certain countries (I think they comprise Germany, France, and the Dominion of Canada) had already embodied in their laws, or contemplated doing so, a provision, requiring not only that the reserves for all policies effected in the country should be invested in the country and deposited with the government, but that these reserves should form a

special security for the assured in that country to the exclusion of the assured in any other country. A provision of this kind not only inflicts an essential injustice on certain of the assured, but it acts to the detriment of all, for it would inevitably raise difficulties in the way of transferring the business of a company that had become weak to another and stronger company, and, as pointed out by Mr. Trefzer, of the Swiss Federal Bureau of Assurance, in an excellent summary of this question contained in a paper contributed by him to the Bulletin of the Permanent Committee of International Congresses for June, 1902, the knowledge that he is entitled to the mere reserve is no adequate satisfaction to an assured whose age or state of health prevents him effecting a new assurance elsewhere. Th provision, in fact, secures a comparatively small benefit to those who need it least, and is a mockery to those who are most in want of a continuance of their contract.

At this Congress, I think, we are entitled to take our stand on the fact that the principles enunciated by MM. Adan and Le Jeune were accepted by all the speakers in the discussion at the London Congress, and that their reasoning has never been refuted; and in the absence of any papers supporting a contrary view we must assume that the action of those governments which have introduced or contemplate introducing restrictive legislation of this sort is silently condemned by the actuaries and experts of their respective countries.

In some countries legislation is also in force or contemplated, stipulating that the amount of the deposit should equal the reserves for the policies effected locally, and that the deposit should be invested in local securities only; sometimes that it should be invested entirely in securities of the government in question. Such provisions, although likely to impede the actions of the companies and affect their profits unfavorably, do not strike at their existence, and however unwise or illiberal we may think them, it should be left open to the various companies to choose whether, by entering the territory, they will submit themselves to such conditions or the reverse; but I would provide, by means of publicity to which I shall refer later on, for every one being able to judge how the welfare of the companies was affected.

(3) Every company should be required to file with the insurance department a copy of the prospectus or prospectuses and forms of policy in terms of which it transacts its business, and it should be the duty of the department to examine these prospectuses and policy forms, and see whether they express clearly and accurately, in terms such as a plain man can readily understand, the fundamental constitution of the company, the guarantees it offers to its assured, and the rates and conditions on which it issues its policies. There need be nothing inquisitorial about such an examination, and the companies should be allowed to transact their business under any plan, and subject to such conditions as they please. All that is requisite is that their plans and conditions should be plainly set forth in the company's prospectus, so that no one, if he exercise ordinary common sense, should run the risk of misunderstanding the nature of the bargain he is making when he takes out a policy, or of being misled by the statements of any irresponsible agent. Further, I think that the doctrine of "uberrima fides," which places the obligation on the assured of showing, in case of need, that he has not in his proposal for assurance made any material misstatements, or misled the company in any way, when it agreed to enter on the assurance, should apply equally to the company when it is a question of interpreting the statements in its prospectus, on the faith of which the assured agreed to take out a policy. This is the principle acted on in those countries in which Roman-Dutch

law prevails, and it may well be made the basis of the law of assurance in all countries. We ought to recollect that the assured is at a disadvantage in dealing with the company. He has no practical means of checking the accuracy of statements or estimates that appear in a prospectus, and he is entitled to assume that they are correct. The ordinary law protects a shareholder, who is induced to subscribe to a public company by incorrect or misleading statements in its prospectus, and he has recourse against the directors for the recovery of his money. It is of much more importance to an assured, whose contract is life-long, that he should not be misled at the outset, for he may pay premiums to a company for years before he is in a position to discover that he has all along been under a false impression, and it may then be too late to make any satisfactory remedy. These remarks receive forcible illustration from the case of *H. S. Foster vs. The Mutual Reserve Fund Life Association,* which was heard recently in the Court of Appeal in England. The following is an extract from the judgment delivered by the Lords Justices (the Master of the Rolls, Lord Justice Romer, and Lord Justice Cozens-Hardy) on March 22d last:

"During the course of the argument we felt grave doubt whether under this policy the 'maximum rate' is fixed once and for all by reference to the age at entry, or whether it increases from year to year by reference to the actual age at the date of assessment. Upon the whole, we have arrived at the conclusion that the latter view is correct, and that there is not sufficient in the policy, which in effect incorporates the constitution, to deprive the directors, as against the plaintiff, of the power which, as already stated, they possess under the constitution. It follows that the judgment, so far as it deals with the construction of the policy, must be discharged. But this does not dispose of the case. We are clearly of opinion that the documents circulated by the company are tricky and misleading. 'Life insurance at about half the usual rates' was, to say the least, an inaccurate statement. Even if true in the first year, it would not be true in subsequent years, and the time would arrive when the rate would become so excessive that no sane man would care to keep the policy up. The policy granted to the plaintiff was not such a policy as was held out to him." *

It is no satisfaction to the assured to point out that this was what is called an assessment company, whose ideals and practice differ entirely from those of the ordinary level premium companies. The public is unable to distinguish between the two, and it is a scandal that any assurance company—assessment or otherwise—should be allowed to come before the public and unblushingly carry on business for years, and collect premiums under false pretenses. The Institute of Actuaries did what it could to instruct the public. A paper, exposing the assessment system, by Mr. H. W. Manly, a former president, was read before the institute, on December 20, 1886. Mr. King also wrote a pamphlet, entitled "Facts, Fallacies, and Fancies in Life Assurance," condemning the system. Both of these were widely circulated, but the public would not listen. *"Quem Deus vult decipi, prius dementat."* What is wanted is a provision of the law which should make the publication of false and misleading prospectuses impossible.

As a further protection to the assured, I would enact that a company should furnish to its assured, with each policy it issues, a signed copy of its prospectus, in terms of which the policy is underwritten. This would

* It is right to state that on April 8th last an appeal to the House of Lords was granted with the consent of the plaintiff, and on an application by the defendant.

enable the assured, if he took the trouble to examine the prospectus and the policy as he ought to do, to see that he understood the contract he had entered into, and that he had not been misled by the verbal statements of any agent.

There is one other feature of the case I have quoted above to which I may be allowed to call attention. The Mutual Reserve Fund Life Association is an American company, having its head office in New York. It was established in the year 1881, and on December 31, 1900, had 81,076 contracts in force for assurances, amounting to £38,863,937. Now in the State of New York, as in every other State of the American Union, there is a stringent assurance law in force, and a special insurance department, created by the legislature, whose duty it is to investigate the affairs of every insurance company, and to see that none are allowed to carry on business that are not thoroughly sound and solvent. I think we may legitimately say of this company to our friends of the Government Assurance Bureau in New York, with apologies to Molière, "Comment diable pourrait-elle sortir de cette galère." Surely there must be something very defective in the insurance laws of the United States when they permit of an assurance company carrying on its business for so many years—by means of misleading documents—and the insurance department of the country, to which the public has been led to look for protection, seems to have been unable to stop it.

(4) The next duty with which a government insurance department should be charged is to examine the returns which the companies are required to make, and to see that these are in the forms prescribed by the law, and that no company makes default, either in furnishing the returns or in complying with any condition that the law formulates. If any default should occur, then the department, after due notice given, should be empowered of *its own motion* to bring the company before a court of law, so that any necessary and authorized penalties may be enforced, or that the court may decide that the concession has been forfeited and order a transfer of the business, or take such other steps for the protection of the policy-holders as it may, after hearing any expert evidence that is submitted to it, or that it chooses to call for, think fit. In particular, the court should be authorized to order a reconstruction of the company "*as a mode of winding up.*" The existing British law does not sufficiently provide for dealing with insolvent companies, as both Mr. King, in his paper, read before the institute, already alluded to, and Mr. Baily, in the discussion that followed, pointed out. In the case of the Albert Insurance Company, a special Act of Parliament had to be passed, empowering Lord Cairns to act as arbitrator, and in the case of the Sovereign Office recourse had to be had to another act, as the Life Assurance Companies' Act of 1870 proved unworkable.

I would not empower the department to itself investigate the position of any company, or to criticize its plans or methods of business, further than seeing that they are clearly explained and are in conformity with its statutes and prospectuses. The mode of supervising the accounts of the company and of estimating its financial position I shall deal with in the second portion of this paper.

(5) The law should require every foreign or colonial company to choose a domicile in the country in which it carries on business, and to keep the insurance department advised of any change in the address of its head office in such country. The appointment of an attorney to sue and to be sued should be compulsory, and the amount of the government deposit should be capable of being attached, in case of necessity, in satisfaction *pro tanto* of any judgment delivered against the company, and

the company should thereupon be required to make up again the deposit to its full amount. The company should be required, if a foreign or colonial one, to accept the decisions of the courts of justice of the country in which it carries on business, and it should, as a condition of its obtaining the concession, enter into a legally binding obligation with the government, acting through the insurance department, that it will accept the jurisdiction of the local courts, and will agree to be bound by the conditions of the insurance law of the country where it operates. If its statutes or regulations render it *ultra vires* for the company to come under this condition, then the concession should not be granted.

It may be said that a deposit of even so considerable a sum as £20,000 might not be sufficient to satisfy a judgment obtained against a company, as the amounts retained by some British companies at their own risk on a single life often reach this figure, and in the case of American companies often exceed it. But I should not be afraid of running this risk, even in the event of war, as sound and solidly established life assurance companies are not in the habit of evading the obligations honestly made out against them.

(6) One other duty might be laid on the insurance department which is important from a national point of view, and it might be arranged to be carried out on such principles as the insurance companies would, I believe, be only too glad to fall in with, as it would relieve them of a considerable amount of odium, which attaches to them at present in their honest endeavors to deal out equal justice to all their policyholders. I refer to the duty, which might be thrown on the insurance department, of acting as a clearing house for the assessment of the sums to be paid to the companies in compensation for the extra risks that are run by all those assured lives who are required to expose themselves to the risks of war. Every country must consider it essential to the conditions of its existence that the savings of those who defend it in time of need should not be sacrificed through their incurring the risks of war.

In Great Britain, the life assurance companies generally will issue in time of peace to officers in the army and navy policies that cover the risks of climate and service in any part of the world in consideration of an extra premium at the very moderate rate of one-half per cent. per annum on the sum assured. No difficulty arises with regard to these policies. They will be paid in the ordinary course in the event of death under any circumstances. The misfortune is that comparatively few officers take out policies of this kind, and the majority either do not assure at all or prefer to wait until the special risk arises.

The plan that I would propose for dealing with such cases is as follows:

I. The companies to be empowered to make a temporary deduction of 10 per cent. from the sum assured for each year that the war lasts on the settlement of any claims that arise while the assured is on active service. This does not represent a payment to the company, as the amount will be accounted for later on, but the relatives may very well be glad to receive an immediate settlement of 80 per cent. or 90 per cent. of the sum assured.

II. At the close of the war, the companies to be empowered to require from all their assured a declaration stating whether they had been exposed to the risk of war, and if so, in what capacity—any failure to make such declaration to render the policy subject to a debt of 10 per cent. per annum, as in Clause I., and the furnishing of a false declaration to vitiate the policy absolutely. The companies would then send in to the insurance department a return of all those who had been

exposed to the risk of war, including those who had died, and the department would pool the returns and adjudge the payment to each company of such a rate per cent. on each of its policies where the assured was exposed to war risk as would meet the claims in the aggregate that had arisen, with an addition of 10 per cent. to cover the risk of deterioration of health in those who had survived.

III. The companies should be empowered, while the war lasts, to require a similar declaration from those who wished to borrow on security of or to surrender their policies, and any loan or surrender made would, if war risk were being incurred, be subject to the deduction of the 10 per cent. per annum mentioned in Clause I.

IV. The companies would, at the close of the war, make a return to those to whom they had paid claims, or to those who had surrendered their policies, of the difference between the assessment made by the insurance department and the deduction of 10 per cent.

V. It should be provided that these assessments to compensate for war risk, being the net amounts required, no commission thereon should be payable to any agent.

There are two objections that may be raised to the carrying out of this plan. The first is that it might not work out equally in the case of individual companies, although the assessment was correct on the average of all companies taken together. But this is a small price to pay for the settlement of a burning question, and I do not think that any company would feel inclined to raise the objection.

Then again it may be urged that the plan imposes a great deal of trouble on the companies and on the assured, and that, as Great Britain is frequently involved in small frontier wars, the trouble incurred would be out of all proportion to the benefit gained. There is a good deal of force in this argument, and I would therefore propose that the law should not actually put the plan in immediate action, but only empower the government to do so by an order in council when the warlike operations were, in their judgment, of sufficient magnitude to render this course desirable.

There remains to be considered the position of a foreign company carrying on business in a country with which its own government is at war. The attorney might be withdrawn, and the deposit of £20,000 would be far from sufficient to meet the ordinary claims as they arose. In the first place, I do not think that any life company would be likely to withdraw its attorney or evade obligations that it had voluntarily entered into. But let us assume that the unlikely does happen, and that the attorney is withdrawn, or merely that there exists a fear of this being done. The insurance department should be empowered, as soon as war is declared, to enter into relations with the attorney, and, if necessary, constitute one of its officials a joint attorney, with the object of securing a promise that no premiums paid on current life policies should be sent out of the country so long as the war lasts, and that the amount thus collected should be made use of to pay current claims, which the attorney, or, in his absence, the joint attorney should have power to adjudicate on and settle on behalf of the company. I do not believe that it would ever be necessary to make use of the power thus given, but the fact that the power existed and that the foreign company accepted the stipulation as a condition of its obtaining the concession could not but be reassuring to those who had taken out policies with the foreign company, and would avoid any hardship that might otherwise arise through delay in the settlement of claims.

Section B.

I now come to the second division of this paper, which will deal with the information which it is considered necessary to elicit from the companies in order to be enabled to judge of their solvency, and the form of the returns in which such information should be given. Here, I think, it will be possible for the actuaries of all countries to arrive at a considerable degree of unanimity of opinion. The question will arise whether the time has not now come for making a set endeavor to reach the ideal that Mr. Harding held out to us in his paper before the Congress at Brussels, in 1895, and whether a committee should not be appointed at this Congress to consider the question of drawing up a common form of accounts and valuation returns for use in all countries, with such minor modifications as may be rendered necessary by any differences in the practice of life assurance in various countries. These differences are, however, slight, and do not touch any question of principle; and the aim of actuaries in all countries is the same, viz., to secure the continued solvency of the companies carrying on life assurance business. With common aims and common modes of business, it should surely not be impossible to arrive at an agreement as to what is required. The spirit in which we should set about our task is to elicit such information only as will be useful for the end in view. We do not want to put the companies to needless trouble, or to extract information for the mere pleasure of piling up statistics. In fact, any information that is not definitely useful is a detriment rather than a gain, and will tend to confuse the mind with a mass of figures, and obscure the accounts which are intended to enlighten us.

There is another aspect of this subject on which we must acknowledge that a fundamental difference of opinion exists between the actuaries of different countries—the use, namely, to be made of the information after it has been obtained, and the parties who should be empowered to take any action that is necessary. The reason for this diversity of opinion must, I think, be sought in the difficulty of the problem that is presented to us. If it were possible to lay down a common theoretical standard of valuation, which it would be just to apply to all companies at all times and under all circumstances, the solution of the problem would be easy, and governments would only have to see that it was adopted or enforced. But there are a great many varying standards of valuation under all of which a company would be considered as solvent, and there is no common agreement as to the stage in the course of a company, if such course is downward, when the company may be pulled up, until the last stage is reached and it is manifestly insolvent. British actuaries have advocated "publicity," as enforced by the British government, but at the same time there is an almost universal agreement among them that the existing British act should be improved, and that further powers should be conferred on the Board of Trade.

Other governments, on the contrary, as in the case of the United States, have initiated legislation, intended to prevent companies becoming insolvent, if indeed this be possible, with the result that assessment societies like the Mutual Reserve Fund are established so as to evade the law, even if it be not the case that it was the very stringency of the law which gave rise to their formation.

I shall in the sequel discuss whether it is not possible to find some common ground between these two conflicting views. This will best appear if we deal in detail with the various forms and requirements that are considered essential by all of us to be furnished by the companies.

I. Revenue Account.

This account exists for the purpose of showing the income and outgo *applicable* to the year, and should be made up on a revenue as distinguished from a cash basis. It will show the amount of premiums and interest belonging to the year, and the balance sheet will therefore contain, on the assets side, the amounts taken credit for that are outstanding at the close of the year and remain to be accounted for. Similarly the revenue account will show the amount payable through deaths that have happened within the year, and the commission and expenses applicable to the year; and the balance sheet will contain, on the liabilities side, items stating the amounts of unpaid claims, commission, and expenses. The account should open with one single item of "Amount of Fund at the Beginning of the Year," and close with a similar item of "Amount of Fund at the End of the Year." The balance sheet will show in any detail that is necessary of what subsidiary funds the total amount is made up. The Swiss Act of 1885 requires these two items to be split up on each side of the account into seven different items, being the amounts brought and carried forward on as many different subsidiary accounts; but this seems to me a mistake, and obscures the purpose of the account (namely to show the income and outgo). Besides, it is an unnecessary multiplication of figures, as the detail of the various subsidiary funds is shown in the balance sheet at the close of each successive year.

I annex to this paper a form of revenue account and supplementary statement, which I would suggest for adoption. The principal additions to the present form of the British account are, that the new and renewal commission are shown separately, and that profits or losses on the realization or on the writing up or writing down of securities are required to be stated. The supplementary statement contains an analysis of the interest income, and is intended to form, with other information furnished in connection with the balance sheet, some guide as to the character and soundness of the securities.

Separate revenue accounts should be furnished for:

I. Funds belonging entirely to shareholders.

II. Assurance funds on which the whole of the profits belong to the shareholders.

III. Assurance funds in the profits on which the policy-holders share.

IV. Assurance funds for industrial business.

Balance Sheet.

There should be separate balance sheets for:

I. Shareholders' funds.

II. Assurance (including annuity) funds, ordinary business.

III. Assurance (including annuity) funds, industrial business.

I annex forms of balance sheets, which I should propose for the shareholder's and assurance funds respectively.

In the case of the assurance fund, the following further information should be furnished:

(1) Detailed lists of stock exchange securities, showing amounts held and ledger and market values thereof.

(2) List of landed and house property belonging to the company and the net income after deduction of all expenses derived from each during the year. (See Table B, appendix.)

(3) List of properties of which the company are mortgagees in possession, and the net income derived from each during the year.

(4) List of mortgages on which the interest, or any portion thereof, is in arrear for more than twelve months from the due date.

(5) Enumeration (no particulars required) of all mortgages held by the company exceeding £50,000 on any one property or security, and the rate of interest yielded in each case.

It will be seen that the object of the information required about securities and investments is to afford the assured and the public some general indication that the assets are sound and wisely invested. The revenue account will show from year to year what sums, if any, have to be written off through losses on investments; and when we recollect the skill and experience brought to bear by directors and officials of insurance companies in placing out their money, and the care they exercise in spreading their investments and in taking proper margins on mortgages, I believe the information elicited will be sufficient for its purpose. It will insure, at any rate, that any investment that does turn out unfortunately is at once brought to light and promptly dealt with. The only argument against this course being followed is that, if time were allowed to nurse a weak security, it would eventually come out all right; but in my opinion the preferable course is to cut out the weak spot at once, and there is no objection to nursing a weak security so long as it does not appear in the balance sheet at more than its realizable value. What I have just said applies particularly to mortgages or loans, for in the case of stock exchange securities their values fluctuate from day to day. Individual securities may move up or down, and it is sufficient if the *aggregate* market values exceed the book values by a fair margin of profit.

Having provided for the forms of the revenue accounts and balance sheets furnishing the information that is considered necessary, the next thing is to verify its accuracy. In Great Britain we are accustomed to do so by having the accounts examined by professional auditors, that is, technical experts in accounts. These gentlemen are elected by the shareholders, or, in the case of mutual companies, by the assured themselves, by whom also their remuneration is fixed, and they are absolutely independent of either directors or officials. The employment of auditors has only been made compulsory since 1900, and then only in the case of companies enrolled under the Limited Liability Acts. Nevertheless, there has been a general movement in recent years among assurance companies in Great Britain to have professional auditors appointed, and I would make this course compulsory on all life companies. It will be interesting to note the terms of the auditor's certificate, and I subjoin the copy of one which was given in the case of a large company a few months ago. I may add that a certificate of this sort is usually given after what is called a continuous audit, that is to say, the auditor or members of his own staff follow up the entries day by day in the company's books, for weeks at a time every quarter, so that every quarter's account is vouched as soon as completed, and the verification of the assets and securities takes place at the close of the year:

"In accordance with the provisions of the Companies Act, 1900, I certify that all my requirements as auditor have been complied with, and I report to the shareholders that I have audited the above balance sheet and the several accounts incorporated therein together with the vouchers relating thereto. In my opinion the balance sheet is properly drawn up, so as to exhibit a true and correct view of the state of the company's

affairs as shown by the books of the company. The audit has included verification of the bank balances, inspection of the company's stocks, shares, and deed, as well as those held as security, excepting such securities and deeds as are deposited abroad for which certificates have been produced.

London, March 21, 1903.

(Signed).....F. C. A.
Auditor.

The revenue accounts and balance sheet should also be verified by the signatures of three of the directors and of the principal officer of the company.

Summary and Valuation of the Policies and Valuation Balance Sheet.

I append forms which I should propose for adoption for these two statements.

There being no uniform standard of valuation applicable to all companies, and no possibility of arriving at one, as I think actuaries of all nations are agreed, the companies are permitted, under the present British act, to make their valuations on any bases they please, subject to these being clearly stated in the forms required by the act and in the answers to questions accompanying them. The result is naturally that there are a great many variations in the bases of valuation made use of, although there is a general tendency to abide by what is known as the net premium system of valuation. A valuation by this system I would call a central valuation. If, then, we could concur in generally agreeing on a fixed minimum provision for future profits and expenses, which in conjunction with a low rate of interest would produce what I call a high-water mark valuation, and in conjunction with a high rate of interest would produce a low-water mark valuation, we should be in a position to allow the companies perfect freedom, without any uneasiness as to their being solvent, to make their valuations on any basis which brought out a result between high-water mark and low-water mark and their position between either of the two limits and the central valuation would exactly indicate the measure of their strength. Can this be done without putting the companies to an unreasonable amount of trouble?

I venture to submit that the two forms of (I.) summary and valuation, and (II.) valuation and balance sheet, will effect this purpose.

A life assurance company's valuation is dependent on three variables:

I. The table of mortality.

II. The amount of loading, or margin of premium, reserved for future expenses and profits.

III. The rate of interest adopted.

With regard to the first, there are now standard tables in use, deduced from the record of the experience of assurance offices in the respective countries, in Great Britain, America, Germany, and France. In course of time, no doubt the relative reserves required by these several tables will be a matter of investigation by actuaries of the different nationalities; but, based, as all of them are, on the records of assured life, the limits of variation will, I believe, be found to be narrow, and a valuation by any one of these tables would be accepted as authoritative.

With regard to the third variable, the rate of interest, I think we

may leave the safety of that adopted by the company to the judgment of the man in the street. Everyone can understand that a company, which discounts its future liabilities at 3 per cent., will be in a stronger position than one which discounts them at 3½ per cent. or 4 per cent. The reserves which need to be accumulated at 3 per cent. only must be greater than those which assume that a future rate of interest of 4 per cent. may be reckoned on. It does not necessarily follow that a valuation at the higher rate of interest is unsound, assuming, of course, that the rate of interest chosen is not an absurd or an impossible one, and that there is a fair prospect of realizing it (taking into account the existing investments of the company and the rate of interest yielded by them), over a fairly long series of years. In deciding on a rate of interest for adoption in a valuation, it is more often a question of the system of distribution of profits in use by the company, and of the fair treatment of older and more recent policy-holders respectively. It may well be the case that if the reserves are made too high, that is, if they are based on too low a rate of interest, it is done at the sacrifice of the interests of the present generation of policy-holders to the interests of those who enter at a later date. These are matters that may well be left open for settlement, in each particular case, to those who are the most interested, and who are best able to weigh the balance of advantage or disadvantage in the particular instance of choosing a higher or lower rate. It is not a question of solvency or insolvency, but only one of distributing a greater or less amount of profit. We shall consider it all the more safe to leave this question to the decision of each particular company concerned, when we see the tendency in operation in all the countries where life assurance has made a home for itself, for the companies to make their valuations at lower and lower rates of interest, to take time by the forelock, and prepare for a day which they see is coming, when they will no longer be able to secure the same high rates of interest on sound securities to which, until in recent years, they have been accustomed.

The whole difficulty to the lay mind in understanding the valuations of assurance companies rests with the second variable, the loading. No one who is not an actuary can conceive what "loading" is. It might be anything, and whether less or more of it may be taken, or whether we may even do without any at all, is Greek to the uninitiated, and, over and above that, is profoundly uninteresting. It is here the form of government valuation returns, which I suggest for adoption, comes in to help us.

The "loading" is the difference between the net mathematical premium for the risk, according to any table of mortality, or rate of interest that may be adapted at a valuation, and the gross or office premium charged to the assured; and when we reserve the present value of the *whole* of this difference, we call the valuation a net premium one, or, as I have done, a central valuation. As a rule, life companies adopt this system when they are fully established and have been in successful operation for many years, as is the case with the majority of our English and Scotch companies. But the system does not meet the case of a young company which has still its future to make, or of an old company which has become somnolent and is in danger of passing out of existence itself, through the growing age of its assured and the gradual diminishing of its premium income. It then becomes necessary for an old company to wake up, and it is always necessary for a young company to be active and stirring, and we should entirely stifle the future progress of life assurance, if we did not permit the future "loading" to be trenched upon in

such cases. The question that we have to solve is, to what extent can this be allowed, or, in other words, is it possible to fix, and, if so, where can we fix the high-water mark and the low-water mark of a valuation?

The solution that I propose is that a company should always be required to reserve in its valuation a sum to provide for future expenses and profits, equal to (I.) the value of 5 per cent. upon its gross participating premiums, and 7½ per cent. on non-participating premiums, plus (II.) the value of all future renewal commissions payable, and plus (IIII.) the value of the difference (calculated on the total participating assurances current) between the participating and non-participating rates of premium that it charges to the public, according to the terms of its prospectus at the dates on which the various assurances were effected. The justification that I put forward for the adoption of these limits is this: that in the case of (I.) and (II.) these are the very lowest terms on which it would be possible to arrange for the management of one company's business being taken over by another, and for the contracts entered into being carried out in full; and in the case of (III.) because the difference in premium, which the company charges to its participating assured, is a virtual engagement with them not to trench on this future margin to defray expenses, but to keep it reserved for profits; and it will besides form a legitimate margin of safety over the lowest terms of transfer under (I.) and (II.).

It will be observed that the method I propose avoids the evil of setting up any one definite standard, which fixes specified tables of mortality, rates of interest, or reserve of loading. To do this would be to attempt to make all the companies lie down on one procrustean bed. Instead of having to watch carefully, as it is necessary for one to do with the information furnished by the present British act, every detail of the bases and methods made use of by the companies in their valuations, and of having to measure, if we can, the relations of these to one another, we allow each company to make its valuation practically as it pleases, and then judge by the finished result, inquiring in what position the company is placed between the results of a valuation empirically set up at a higher or lower limit, and those brought out by a central valuation. This is a much easier, and at the same time a more efficient method of estimating the financial strength of a life assurance company than those to which we are at present confined.

Assuming that the method were adopted, how, it may be asked, will it work in practice? It may be urged that the fixing of a *lower limit of valuation* will tend to make all companies gravitate to this lower limit. I believe the result will be exactly the reverse. The *lower limit* is not a standard of *safety,* but a standard of *danger,* which companies will try to avoid as a drowning man will struggle to keep from the edge of a whirlpool. I would empower the Board of Trade, when a company reached this limit,* or when it would only avoid doing so by raising the rate of interest made use of beyond that which it had itself voluntarily chosen at the last previous valuation, to bring the company for examination of its affairs before a court of law; and it could then be a matter for judicial consideration what further liberty should be allowed to it.

Then again there is the question of the practicability of this method stopping a company before an excessive and rapidly growing expenditure has carried it too far. I think that this danger is met by the requirement

* The limits of valuation, either high or low, must not be taken as standards of solvency. They may be made at any rate the company pleases, provided such rate do not exceed that earned by the company on its investments.

for setting aside the value of the difference between participating and non-participating premiums. Excessive expenditure is undoubtedly the great danger that we have to guard against to-day, and yet a great deal of the large expense that life assurance companies incur is justified by the necessity of educating—persuading, tempting, indeed, almost forcing—people into the benefits conferred by a life assurance policy, as the records of the comparatively small amounts of new business transacted by our non-commission-paying offices show, splendid monuments as these are of financial strength. Dr. Sprague attempted to cope with the evil when he submitted his method of making an allowance for the first year's expenses to the Brussels Congress (*Proceedings,* September, 1895), but the formula which he advocated with a factor *k,* which might be made variable in other than his own competent hands, is a dangerous one to use, and the uncertainty as to the limits to which initial expenditure for procuring business may be carried is an additional reason for fixing a limit, below which the strength of a company's valuation should not be permitted to go. It is difficult to understand the principle on which the shareholders of a proprietary company, or the originators or directors of a mutual company are allowed to dip, apparently without limit, into moneys contributed by the assured, in order to found and establish a new company, or to run an old one at excessive speed. If more is necessary in any case than the premium margin or loading, which will alone suffice to enable the company to stand the test of the lower limit of valuation I have proposed, then any excess of expenditure required should come from capital, in the case of a proprietary company, and from a guarantee fund, in the case of a mutual company.

I would refer particularly to the form I have proposed for the valuation balance sheet. I have introduced into this the value of the future office or gross premiums receivable by the company. These are the premiums actually payable, and without taking them into account no proper estimate can be made of the financial position of a company. On the other side of the account there comes, of course, the value of the actual reserve made of loading for future expenses and profits, and the various adjustments in the valuation which companies are accustomed to make for incidence of premium income, immediate settlement of claims, etc., etc., also find a place here. This is better than relegating them to an obscure corner of the valuation summary, and the balance sheet thus gives a fair picture of the results of the valuation.

We must also inquire whether a great amount of trouble will be laid on the offices in complying with this system. The only change required in the valuation summary at present existing is that the difference between the net and the gross premiums is given in column 5, instead of the net premiums themselves. As 68 out of the 73 British offices transacting ordinary business which have furnished valuation returns already value on the net premium system, no additional trouble is involved in their case in giving this information, and it will only be the offices which make a reserve of less than the whole loading which suffer. Column 6, which contains the difference between the participating and non-participating premiums, is additional information required from all the offices, but it is information which it is not difficult to furnish. The column of net liability in the existing returns should be suppressed.

Assuming that (1) the summary and valuation, and (2) the valuation and balance sheet are agreed on in the forms that I propose, then the accuracy of the particulars contained therein and of the valuation itself should be verified by a certificate from the actuary in the same way

that the auditor certifies to the accuracy of the revenue accounts and balance sheet. The following is the form of certificate I would propose:

"I certify that the registers of the company contain a correct record of all the contracts entered into by the company which were current as on ..... last, and that the foregoing summary of the same is correct. I also certify that the valuation balance sheet shows the true liabilities and assets of the company on the bases of valuation set forth in the present return.

(Signed) ....., F. I. A., or F. F. A."

A certificate from a Fellow of the Institute of Actuaries, London, or the Faculty of Actuaries, Scotland, should alone be accepted in the case of home companies. If the actuary is unable to give the first part of the certificate, and the company has only a consulting actuary, then it should be given by the principal officer of the company.

Although British companies owe, I believe, a great part of the esteem in which they are generally held for strength and solidity to the character and reputation of their directors and officials, it may be a comfort to our foreign friends to know that the Life Assurance Companies' Act 1870 contains the following clause, and I would propose to continue it:

"*Clause 19.* If any statement, abstract, or other document required by this act is false in any particular to the knowledge of any person who signs the same, such person shall be liable on conviction thereof on indictment to fine and imprisonment, or on summary conviction thereof to a penalty not exceeding fifty pounds."

Mortality.

The returns in the form that I have advocated, besides leading up to the final result disclosed by the valuation balance sheet, furnish the means also of checking the reasonableness of the assumptions taken by the company as the bases of its valuations. Thus the revenue account will afford the means of showing what rate of interest the company is actually in receipt of, reckoned on the mean of the assurance fund at the beginning and at the end of the year, and it would manifestly be unsafe to assume in the valuation that the company will receive a higher rate of interest in the future than its funds are yielding at the present time. The law might well provide that no higher rate of interest than that actually yielded by the funds, according to Mr. G. F. Hardy's formula, should be employed in a valuation. Similarly, the valuation summary and balance sheet will together afford the means of showing what is the ratio of the value of loading reserved for future expenses to the value of the renewal premiums receivable, and it would be manifestly unwise, and certainly unsafe, if the expense were continued for a number of years, that the expenses already incurred by the company applicable to the renewal premium income, as shown by the revenue account, should exceed the annual amount reserved in the valuation for these expenses. The third variable element that forms part of the bases of a life valuation is the rate of mortality, and we have now to inquire whether it is necessary to make provision for similar information, as to how far the mortality actually experienced by the company accords with that expected by the standard mortality table adopted by the company in the valuation. In my opinion, it is unnecessary to do this. No company that I have heard of has ever failed to meet its engagements on account of its rate

of mortality. We have now behind us the experience of over a hundred years, and this has given actuaries a feeling of the strongest confidence in the sufficiency of the reserves required by any of the recognized standard tables. The tendency also of the general rate of mortality experienced by the populations of all civilized countries is in the direction of a considerable reduction taking place, owing to the growth of knowledge of and improvement in the provisions for securing pure water, good drainage, checking of the spread of epidemic diseases, etc.

It may seem to the uninitiated that assurance companies run great risk of depletion of their reserves from epidemics of one kind or another. In the original statutes of the company in London of which I was formerly the manager, there was a clause * enabling the directors to postpone the payment of claims, or to pay reduced amounts in the event of the plague causing an excessive mortality and absorbing a large part or the whole of the reserves; and a similar regulation was, I believe, common in the statutes of English companies established about the same time. But this was in the year 1820, and we have long since learned—I do not think that I am putting the statement in any stronger form than I am entitled to do—that any danger to the stabiliy of a life insurance company from any such cause is impossible. The fact is that epidemics do not practically touch the classes who assure their lives—that is to say, the people who are possessed of the virtues that cause them to effect assurances, the virtues of prudence, care, and thrift. And this statement will apply in due degree even to the class which effects assurances in industrial offices as compared with the class which is either too poor, too careless, or too reckless to effect assurances at all. It is not only that the assuring class of the population is practically out of the reach of attacks of epidemic diseases, but even if such attacks do touch it, the persons who constitute the class are generally better able to ward off the effects of disease, whether owing to more healthy habits of life or the possession of sufficient means to secure proper medical comforts and attendance, and change of air when required. Hence it happens that the records of mortality of life assurance offices are influenced in a very minor degree by the presence of epidemic disease among the general population. This was even the experience during the recent prevalence of the plague in India of a life insurance company having its head office in Bombay, which transacts its business entirely among native Indian lives. Hence mortality may be reckoned as the safest of the three factors which constitute the bases of life assurance valuations.

But there is another reason why we should not ask for any comparison to be made between the rate of mortality expected on the basis of the table made use of in the valuation and that actually experienced, and the reason is that this information is of no scientific value. It is even positively misleading.

There are, however, two points with respect to mortality experience which ought to be carefully attended to. In the first place, no company should be allowed to make its valuation by other than a recognized

* As this is a matter of historical interest I append the actual words of the clause.

Seventy-third Provision in Case of Plague, Etc.—"That whenever a sudden increase of deaths shall happen in consequence of the Plague or any contagious or Epidemic Disorder, or of Famine, Invasion, or Civil War, it shall be lawful for the Court of Directors to defer the payment of the whole or any part of the sum to be claimed under each Policy, which shall expire during the prevalence of such Plague, Contagious or Epidemic Disorder, Famine, Invasion, or Civil War, until such time as an adequate supply for the payment thereof can be obtained out of the Funds of the Company."

standard table of mortality, based on assured life. There can be no hardship in this requirement, seeing that many national standards, based on such experiences, are now in existence. The use of special tables of mortality, the value to be attached to which can only be known to the offices using them, should be peremptorily forbidden. It is as if a baker or grocer, from whom we made purchases, were to be allowed to use what weights he chose in selling his commodities. The use of special tables was formerly not uncommon, in the first instance because of the absence of any recognized tables, and afterwards from a feeling perhaps that a special table better suited the special class of lives assuring in the company.. That is, however, a mere matter of opinion, and it would be dangerous to make it a ground for permitting the use of a special table by any office, and would, moreover, remove that company from the possibility of having any comparison instituted between it and other companies, or of any one knowing definitely what its financial strength was. In Great Britain, the use of special tables has long since disappeared, and all of our native companies now value by the H. M. or O. M. tables. The same process of substituting standard for special tables is in operation in other countries.

The other point with respect to mortality to which attention should be paid is to see that companies which make a selection of the lives they assure on other than the usual recognized principles which require the preliminary test of a medical examination, furnish a separate revenue account, and keep a separate fund in respect of such lives. I am no advocate for repressing the trial of experiments or the adoption of new modes in assurance. It may be that the selection of lives otherwise than by examination by the company's own physician is quite as satisfactory as that requiring medical examination; but until the fact is proved by actual test of the results over a series of years, it seems unfair to mix the two classes of differently selected lives together, to the prejudice perhaps of the class which undergoes what is apparently the strictest ordeal of selection, that of medical examination.

I have now endeavored, in Sections A and B of this paper (1) to define the limits of government supervision; (2) to provide means in the accounts and valuation statements for making mere publicity effective to secure its end, namely, the solvency of life assurance companies. I should have preferred to leave still less room for governmental action than I have done, if it had been possible to put in operation any plan enabling the assured to take action for themselves in causing the company with which they have entered into contracts to present itself for examination in a court of law when deemed necessary. It would have been better for some reasons to treat this as a matter of domestic concern. I do conceive that it is possible to formulate a plan by which policy-holders might give effect directly to their wishes. To make such a plan practicable, it would be necessary to provide for (1) the election of a professional auditor by the assured and directly representing them, in addition to any auditor appointed by the shareholders. (2) To adopt the principle of representation by parts of the constituent body; thus, all policy-holders having equal rights, it would be sufficient if a section of the home policy-holders were in turns delegated to represent the whole body, and to elect the assured's auditor periodically, say every three years. Instead of being obliged to consult so large a body as perhaps 10,000, 20,000, or 30,000 policy-holders, many of them probably resident abroad, it would be sufficient if those home policy-holders only whose names began with the letters A and B were allowed to vote in the

first election of the auditor, or in any other matter their auditor thought it desirable to lay before them; those whose names began with C or D on the second occasion, etc., dividing the whole body of policy-holders into approximately equal groups. A plan of this kind would, it seems to me, have the advantage of eliciting the interest of policy-holders more directly in the progress and success of their companies, of giving them more faith in their solidity, than by any other means, and thus of helping forward the increase and development of life assurance. I considered, however, that this plan would be too great an experiment to make its adoption obligatory on all companies, and that it must be left first to the test of practical experience on the part of some individual company which thought it saw its advantage in adopting it. It must be confessed also that popular representation has its drawbacks as well as its advantages; and there are instances on record where even one persevering and obstinate policy-holder has caused endless trouble to the management and detriment to the interests of his company by insisting on the discussion by all the policy-holders of some comparatively trifling grievance. On the whole then, until the experiment had been tried, and had succeeded, I thought that it would be better to confer the necessary powers on the Board of Trade or other government insurance department.

The result of our examination has been to show that some important alterations are necessary in the existing British law before it can be said effectually to protect policy-holders. And the interests at stake are very great. Mr. King wrote, in his paper already referred to: "The principal scandal of our existing law is, that companies which are known by every expert to be insolvent, and the insolvency of which is freely canvassed in the insurance and general press, are yet allowed to go on for years collecting premiums and wasting their resources, it not being the duty of any one in particular to stop them." (J. I. A., vol. xxix., p. 525). This was in 1891, but no attempt has been made to amend the law. In 1887 one British company failed so disastrously, and the law was found so helpless in aiding its reconstruction that its policy-holders, on being transferred to another company, received a mere pittance, compared with the amount of their original contracts, and those who had been assured longest, whose age or ill-health rendered the continuance of their contracts most vital to them received least. And this was a company which was not managed carelessly or recklessly, but it was badly advised as to the security afforded for a mortgage, and it made the practical mistake of placing out too large a portion of its funds in one security.

Had the revenue accounts and balance sheet been required in the forms I have advocated in the present paper, the directors would have been obliged to deal with it, probably at the cost of passing a single bonus-division; but they hoped for the best, and advanced more money in the attempt to retrieve what was already gone, with the result that about 7,500 policy-holders, who once believed in life assurance, were converted into its enemies forever; and a certain want of confidence was moreover instilled in the minds of the general public with regard to the whole institution. Surely British actuaries cannot rest satisfied until they have made themselves right before the world, and secured such an alteration of the law as will make the repetition of so great a scandal impossible.

Section C.

I now pass to the consideration of the powers conferred by the legislatures of other countries, but I shall illustrate this section of the subject chiefly by reference to the insurance laws of the United States and of Switzerland. I speak, of course, of those laws only which concern the relations of the government and the insurance companies, and not laws which concern themselves with the general conditions of the insurance contract. And here I would say, as will indeed be manifest from what I have already said in the sourse of this paper, that I do not propose to enter on any crusade against the interference of government with companies, so far as this may be necessary to protect the interests of their assured, and so far as the assured may be shown to be unable to help themselves. On the contrary, so far as legislative interference is designed to protect policy-holders and not exclude their subjects from the benefits arising from the competition of foreign companies, I honor the governments that have adopted it for their action. But there are several ways in which such legislation may fail to effect the purpose for which it was intended, or in which it may, in the requirements made, go beyond what is either necessary or desirable. It will be well to discuss these somewhat in detail, and as I have already so freely criticized the defects of the British law, I am sure I shall be pardoned if I point out what seem to me to be defects in the laws of other States. It is not for the pleasure of making merely negative criticisms that I do so, but with the object of attaining, if it be possible, something approaching unanimity as to the essentials of government supervision, and of placing the law of life assurance, so far as it concerns the relations of governments and the companies, on an international basis.

I. Legislation, then, in this sphere fails to effect, or departs from its purpose when it unnecessarily restricts or hampers the action of the companies.

Examples of this may be found in the regulations in force in several European countries (Germany, Austria, Italy), restricting the companies to certain specified classes of securities for the investment of their funds, and in the provisions of the laws of several of the States of the American Union (1) limiting the time within which a company is entitled to contest a fraudulent claim (three States); (2) prescribing the grant of paid-up insurance in the case of lapsed policies, and fixing the mode in which this is to be calculated (six States); (3) forbidding the insurance of lives at other than the ordinary rates of premiums (twenty-two States); (4) stipulating the modes in which the amount of the sum assured is to be adjusted in the event of misstatement of age (two States); and even (5) fixing the maximum rates to be paid to newspapers for publishing the annual statements of accounts.

I venture to affirm that experience shows that regulations such as the foregoing are quite unnecessary in the interests of the assured, even if they are not sometimes harmful, and the matters to which they relate had much better be left to the free play of competition and to the open air of publicity afforded by the company's annual statements.

II. Legislation will also be harmful, if it proceeds upon incorrect ideas of the conditions of solvency of assurance companies.

The most important instance of harm arising from error of this sort is the setting up by government of a valuation standard of solvency. I have already spoken of the impossibility of setting up a standard that is

fair and just to all companies and under all circumstances, but this is exactly what the United States have done without taking account of the breaches of justice and equity involved in doing so. They have indeed done more than this, for they have recognized, so far, the sovereign power of the individual States as regards life insurance legislation, and have thus conferred on each State the power of setting up a standard of its own. And the individual States have very freely availed themselves of this power. I find that thirty out of the forty-nine States have set up standards as under:

*Table of Mortality	Rate of interest	No. of states
C. O. E.	4%	17
Am. Exp.	4%	3
"	4¼%	1
"	4½%	8
Any table of mortality or rate of interest at discretion of Insurance Commissioner.	....	1
Same standard as home state	....	3
No standard	....	16
Total	....	49

Hence a company, which was solvent according to the standard of one State, might be insolvent according to the standard of another State. This is the logical result of setting up a standard at all, either by an individual State or by a particular country, and does it not seem to reduce the practice to an absurdity? It may be the case that individual States are accustomed to, or do sometimes waive the use of their own standard in the case of companies coming from another State, and allow them to use the standard of the home State; but this lands the State governments in the injustice of discrimination, and of dealing out unequal measure to home and foreign or other State companies.

We ought not to blind our eyes to the fact that the setting up of a compulsory valuation standard by any country is a very stringent measure, and, like all severe laws, it is likely to bring on more evils than those it attempts to cure. The setting up of a valuation standard presupposes that a life insurance company has liabilities of some sort to set against the reserves and assets, which are supposed to be a necessity of its existence. And this is the case with what are called ordinary or level premium assurance companies. But in America the ingenuity of company promoters has devised a form of company called assessment companies, which breaks through the meshes of the law, and is constructed on the theory, perfectly sound in itself, that each year's risk is met by that year's contributions, and that there is no necessity to carry forward any reserve at all. This is correct, if the assured clearly understand that, as the ages of the assured lives increase, so the mortality risk increases, and that a time is at last reached when the contribution necessary by way of premium is so large as to preclude the reasonableness of keeping up the policy any longer, and the provision that was contemplated almost of necessity falls to the ground. It is essential to the safety of the public that the system on which assessment assurance is con-

* The figures and information in this paper, relating to life assurance in the United States, are taken from a paper by the late Sheppard Homans, read before the Institute of Actuaries, in 1897, and a schedule attached thereto. (J. I. A., vol. xxxiii., page 320.) There may have been changes since that date.

ducted should be clearly explained; and I am not aware whether this is the case in America. In England we have found that the prospectuses of assessment companies are, as shown on p. 373, grossly misleading.

Mr. Homans stated in his paper, already referred to, that on January 1, 1898, the insurances in force in assessment associations in America (exclusive of fraternal societies) reached the appalling total of £1,500,000,000 ($7,500,000,000) against £1,325,500,000 ($6,617,508,-355) in the regular companies.

III. Another source of exil exists when the legislature places duties on an insurance department which, from the nature of the case, are incapable of complete performance, and the State therefore is made to assume responsibilities which it may be driven to repudiate.

This is practically the case when an insurance department is required to certify to the solvency of an insurance company, as is the case in America. The governments of the several States do not shrink from the consequences of the legislation they have enacted, for the insurance commissioners are required not merely to satisfy themselves with the sufficiency, either according to their own view or in terms of the law, of the bases of valuation adopted by the companies; but they are required to make the valuations themselves, and those made by the trained experts and actuaries of the companies are absolutely ignored. This is certainly not placing a high value on the capacity of these experts; but the practice has a worse side, for it is the virtual assumption by the States of all responsibility for the transactions of a company in the event of its failure. Hence we find that a species of inquisition is set on foot, so as to enable the State officials to follow, if it is possible to do so, every transaction entered into by the company. A list is published every year in the returns of the companies to the State of every mortgage entered into by the company. This list, which often extends over pages of the returns, contains the name of every borrower, and the amount of the mortgage or debt. But we may well inquire what is the value of a list like this. It can afford no indication of the goodness or the badness of a security, and it would require to be followed up by a visit of inspection, by an expert in the value of land or houses in each separate locality, to each property given in security by way of mortgage. Apart from the expense involved, is this not putting a burden on any insurance department greater than it can bear? It seems to me far preferable to lay down forms such as those I have suggested on p. 378-9, which will give a general idea of the value of each class of security, judging from the interest actually yielded by it, to make the officials liable, under penalties, for the accuracy of the returns, and to leave to each member of the public the responsibility of forming his own opinion as to the soundness of the company. I have spoken only of mortgages, but an insurance company spreads its investments and loans over as many different classes of security as possible, and a similar minute investigation of value would have to be made in the case of loans on or purchases of life interests and reversions, freehold properties owned, etc. In short, I do not see how, if the State assumes responsibility for solvency, it can rest satisfied unless it is present in the person of a recognized deputy of wide knowledge and experience, at the consideration of every transaction entered into by the company. To accept responsibility and not make the examination, which forms the groundwork on which the responsibility rests, *thorough and complete,* is to delude the public and spread abroad a feeling of security which may not in reality be justified.

Again, we must ask what is the effect of government supervision of

the solvency and practice of a life company, if adopted at all, and carried to its logical conclusion, what is the effect of such a supervision on the actuaries, the directors, the chiefs, on whom the responsibility of management should rest? Is it to increase the strength of their sense of duty to their constituents, or is it to weaken the same in the degree that their liberty of action to do what they consider best for the company and for the assured is denied? Is the crippling of their action with regard to the choice of investments likely to make the investments that are actually chosen better or worse? I hold that the freer the action and the wider the field, always coupled with a full sense of responsibility and of publicity that is effective, the better will be the result.

Finally, we are driven to ask the question, *Quis custodiet ipsos custodes?* The present condition of government supervision may be the best possible in the best of all possible worlds; but who will guarantee the permanency of this condition? We have to look forward to a time when the funds of our great insurance companies, large though they be at the present time, shall have increased tenfold. We shall have on one side the millions of the companies, and on the other side the sense of duty of a government official. We may have faith in the final and inevitable victory of right, but is it wise or prudent or business-like to expose human nature to a trial that it is not necessary to impose? The French have a proverb, "*Tant va l'homme, tant va la chose.*" If we are to look upon humanity as essentially weak and erring, should not we see that, as far as possible, each of us should feel the sense of responsibility under which we act, whether as insurance managers or as members of the insuring public, brought home to us as closely as possible, and that we should not pass on any portion of it to the vicarious shoulders of a government official. I see no stopping place between the supervision which confines itself to the duties I have set out in Section A of this paper, and that which assumes to the government the entire control and responsibility of the management.

IV. Legislation may also err if it adopts defective or incorrect methods to effect purposes in themselves proper and legitimate.

As an instance of these I would refer to the returns showing expected and actual mortality as required under Art. 5 (3) of the Swiss law. I have already discussed the value of statements of expected mortality. At most, these statements as they appear in the reports of insurance companies can only be taken as indicating, in a rough and general way, that the company has a considerable proportion of recently selected lives on its registers. They are of no use whatever for the purpose of indicating by a comparison with the actual mortality experienced, the profitableness or otherwise of a company's operations. These comparisons may be comparatively harmless when made use of by a company itself, although I think it would be better if they were altogether discarded; but they assume quite another character when called for in terms of an insurance law, and made the basis of calculation of a series of percentages as is done on page 27 of the Swiss Returns for the year 1900. The public may be pardoned if they attach to these figures a fictitious importance which they do not possess. In any case, they are a mere surplusage and add to the multiplicity of figures in a return which, to be effective, should be reduced to as small dimensions as possible.

The Swiss act seems to be based on the principle of requiring from the companies certain forms to be filled up, and answers to certain questions to be given *for the information of the insurance bureau,* and it is

left for the bureau, under the authority of the federal council, to publish a report with comments on the returns, and such extracts from, or portions of them, as it pleases. The federal council, moreover, has the right to decide for itself when it thinks a company does not offer sufficient guarantees to the public, and it may then cancel the concession to transact new business. There were carrying on business in Switzerland in the year 1900, thirty-one companies, of which six only were Swiss, eight were German, eleven French, four British, and two American. And if we look at the matter from the Swiss point of view, we must admit that the problem of protecting the interests of the assured of their own nationality, so far as it is possible for the law to do so, presents features which do not come home to us in Great Britain where 87 out of the 100 companies which carry on life assurance business are native companies. All honor then to the spirit of liberality which the Swiss have shown, as indicated by the action of their insurance bureau, in permitting so many companies of foreign origin to enter and carry on business in their country.

It is in no spirit therefore of carping criticism that I venture to express the opinion that the report of the insurance bureau is not unlikely to fail of its object in enlightening public opinion from the very multitude of statistics and comparisons that are published. And these are not always such as would afford much information to an actuary. If we look at pp. xiv.-xvii. of the report for 1900, we shall see that they contain a list of the thirty-one companies carrying on business in Switzerland, with columns showing the table of mortality, and rates of interest employed in the valuation and specimen reserves made by the companies. There seem to be sixteen different bases made use of in addition to special tables in the case of three Swiss companies for assurance prior to 1890 and 1894. I presume that it is with the intention of giving some idea of the comparative strength of the reserves required by the different mortality tables and rates of interest that the Swiss bureau print the thirty-one columns of specimen reserves at pp. xiv.-xvii. of their report. These, however, are of very little value for the purpose. It is quite possible for the reserves by one table to be above those of another table at one age and duration, and to be below them at another age and duration, and there may be any number of percentages of difference between them. Everything depends on the weight of the facts at different ages to which the reserves are applied. It would be a much more effective comparison, and of great value to the Swiss bureau, as well as interesting to the general body of actuaries, if the Swiss actuaries were to construct a model office after the manner of Messrs. Manly and King, and apply to it the several bases made use of by the companies in their valuations. A percentage column would then show the comparative strength of the different bases when applied to an average office transacting an average amount

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The following are the mortality tables made use of in respect to life assurances:

Mu. W.(1)	3½ per cent.	AF and Tariff	4 per cent.
Mu.	3 "	Duvillard	4 "
Mu. (modified)	3½ "	H^m	3½ "
Seventeen offices (England)	3½ "	H^m	3 "
Table Suisse (1876-81)	3½ "	H^m and H^m (5)	3 "
Babbage (Modified)	3 "	Actuaries' table	3½ "
Brune & Fischer	4 "	Actuaries' table	3 "
Davies	4 "	Three special tables	4 "
AF	3½ "		

See J. I. A., Vol. XIV., p. 249; Vol. XX., p. 233, and Vol. XXXVII., p. 354.

of new business. The chief object of requiring companies to give tables of specimen reserves is, it seems to me, to insure that the basis of valuation made use of brings out no negative values, or if it does, to show where these occur.

The form of revenue account (for which the Swiss title of "Compte de profits et pertes" is hardly appropriate) has the great merit of requiring to be shown, *inter alia*, either profits or losses, as the case may be, realized by the sale of securities, or written up or down in the company's books. But the account would itself be simpler if items, which represent subdivisions of the various reserves made by the companies, were not brought into it as stated on p. 378.

I would also exclude from the list of assets in the balance sheet the amount of uncalled capital.

Indeed, a separate revenue account and balance sheet should be supplied for the shareholder's capital as distinguished from the assurance fund.

V. Legislation may also be harmful if it is defective in its scheme, leaving out matters of importance.

As an illustration of this defect I would refer to the fact that the Swiss law, while requiring full details to be given of the stock exchange securities held, and of the property owned by the company, provides for no investigation of the value of the other assets. That this may be an important omission is seen from the following interesting little table extracted from p. xxxiii. of the report of the Swiss bureau for the year 1900.

Placements au 31 decembre, 1900	Sociétés d'assurance sur la vie				
	Suisses	Allemandes	Françaises	Anglaises	Américaines
	%	%	%	%	%
Capital social non versé	8.7	3.3	3.5	15.9	
Hypothèques	52.7	78.4	5.9	17.8	15.9
Immeubles	5.5	1.4	21.5	5.7	9.7
Titres mobiliers	23.3	2.9	57.1	43.0	57.3
Prêts	5.6	10.0	3.5	5.4	9.0
En banques et compagnies d'assurance	1.4	0.8	0.4	1.2	5.5
Divers debiteurs	2.8	3.2	8.1*	11.0*	2.6
Commissions non amorties	....	0.0	0.0	....	
	100.0	100.0	100.0	100.0	100.0

I cannot understand the worth of a system of examining the value of the assets of an assurance company when from 50 per cent. to 80 per cent. of the total assets are in some cases left out of account; I think that an incomplete examination of this kind is worse than no examination at all, for it leaves the casual reader and the public under the impression that the work has been thoroughly done when such has not been the case.

VI. There is one feature of government supervision carried to the extent to which it is practiced in the United States, Switzerland, and other countries having similar laws, which must, I think, have an evil tendency, inasmuch as it will, as it were, exhaust interest in, and public understanding of, the principles of life assurance. What is more natural than to expect that in countries where the government takes the whole responsibility of seeing that the assured are as it considers absolutely

* Loans on, and investments in, life interests and reversions, which are common with French and English companies are included in these percentages, and they should be shown separately.

safe, the public will view with little interest the question, for instance, of the relation of the premium loading to the actual proportion of premiums spent. It will naturally say to itself, "the State has organized departments to investigate the solvency of all life insurance companies, to see to the sufficiency of their reserves and the safety of their investments. It is no concern of mine as one of the assured, or as a member of the public how the companies carry on their business, or whether they spend 25 per cent. or 50 per cent. of their premium income. It is quite enough for me if the insurance commissioner says that my company is solvent." Now this would be a very dangerous attitude of mind for the public to adopt. I cannot imagine that in any country, and especially in one where its citizens are naturally so alert and active minded as they are in America, the question of expenses will be absolutely ignored. All that I contend for is that there must be a tendency to minimize its importance, and to pay less than proper attention to it wherever the government of a country pushes supervision to excess and practically takes on its own shoulders the whole responsibility for the management of the business. The question of expenditure is the greatest danger to the well-being of life companies that we have to face at the present day. We find expensively managed companies in all countries, and the United States, which is the home of everything gigantic, is no exception to the rule. Sometimes the expense will amount to such a large proportion of the premiums received, that it is difficult to see how the companies are able to support it. I am sure that we shall be of one mind in thinking that it is much better to have this and other similar questions affecting the welfare of large public institutions thoroughly thrashed out in full and free discussion by competent experts in assurance accounts, than to accept blindly the fact of the solvency and security of any companies on the mere *ipse dixit* of an insurance commissioner.

I shall now summarize shortly what I have endeavored to set forth in this paper.

I have first of all freely acknowledged the want of logical completeness and the imperfections of the present British law. I have set out in Section A the extended duties which I conceive should be undertaken by the central governments in all countries, these duties being such as cannot be performed by any but a public authority.

In section B I have suggested certain amendments in the forms of accounts and valuation returns required under the present British act, and the returns, as thus amended would, I believe, cover the whole ground of opinion on which belief in the solvency of an insurance company is based, and enable actuaries, bankers, and men of business accustomed to deal with financial questions, to form a sound judgment as to the position of any company.

This is provided for in the following way:

I. The revenue account and tables in connection therewith contain particulars showing:

(a) The rate of interest actually realized on the funds of the company.

(b) The rate of expense at which the business of the company is conducted separated into:

(1) Ratio of expense of procuring new business to new premium income.

(2) Ratio of balance of expenses to renewal premium income.

II. The accuracy of the figures shown in the accounts and balance sheet is vouched for:

(a) By the signatures of the directors and officials who are under heavy penalties if they wilfully report any figures that are inaccurate.

(b) By the independent verification of the entries in the company's books and accounts by a professional auditor elected by the shareholders themselves, or in the case of a mutual company by the assured.

III. The valuation summary and balance sheet show:

(a) The amount of business in force under the several classes of assurances as extracted from the company's books.

(b) The value of the sums assured and of the future gross premiums.

(c) The actual reserve made by the company for future expenses.

(d) The value of the whole of the difference between the office premiums and the net premiums according to the table of mortality and the rate of interest adopted in the valuation.

(e) The value of the difference between the office premiums on the participating section of the business and the office premiums on the same business, if the policies had been effected without participation in profits.

(f) The ratio of the office premiums to the value of the same given in the valuation summary will afford the means of approximating with quite sufficient accuracy to the value of the margins of 5 per cent, or 7½ per cent. and the value of the renewal commission referred to on p. 378.

(d) (e) and (f) will enable any one interested to ascertain the reserves according to a high-water mark or a low-water mark valuation, as well as those according to a central (i.e. net premium) valuation, and therefore the relative strength of the company's position.

IV. The only stipulations proposed to be enforced by the law with regard to the bases of valuation are:

(a) That a standard table of mortality should be adopted such as

H^m
O^m
AF.
M.u W.(1)
Am. Exp.

(b) That the rate of interest adopted should not be greater than that earned by the company according to the formula:

$$\frac{2\ I}{A + B - I}$$

where A = fund at beginning of year
B = fund at end of year
I = total interest revenue of year

or greater than that adopted by the company itself at previous valuations.

V. The details of the business in force at each age will be given (with the elimination of some useless particulars) in the same form as required by the sixth schedule to the present British act.*

VI. The accuracy of the particulars in the sixth schedule is vouched for by the signature, under penalties as before, of the directors and the principal officer of the company and the accuracy of the valuation by the signature of the actuary.

With the above information before it, it would be quite easy for any insurance department, competently officered, to check in a comparatively short time (a few days) the substantial accuracy of the actuary's valua-

* For particulars of the Sixth Schedule and of the requirements of the British Act of 1870 generally, see paper by A. R. Barrand (Transactions of London Congress, pp. 321 and 322).

tion without calling for further information than that afforded by the returns.

In Section C of the paper I have set forth certain inherent objections, which seem to me to lie in the system of State supervision as practiced in the United States and Switzerland and other countries whose legislation is based on similar lines.

The main objection that I urge to both systems (those of the United States and of Switzerland) is that they are, and must necessarily be, imperfect and incomplete, and that they tend to instil into the minds of the public a feeling of security which may not be justified, and that by occupying the ground as they do, they prevent the public from feeling the necessity of learning to look after its own business. It would be an unanswerable reply to this argument that from the nature of the case the public, or the ordinary men of business, bankers and financiers, were unable to understand or express an opinion on assurance accounts, but I claim that the system which I have described in this paper and have summarized on pp. 394-395 will enable this to be done without difficulty. Further, I urge against the United States system that it sets up official standards of valuation which condemn one another and exert an evil influence on the progress and practice of life assurance, and against the Swiss system that valuations by special and other than standard tables are freely admitted, and that the use of modified standard tables is also allowed, the result being that no opinion can be formed of the relative merits of different valuations, the comparison of reserve values given in the Swiss returns being quite inadequate for this purpose.

Finally, I would urge that the actuaries of State supervised companies themselves speak of the system in force with a very modified degree of enthusiasm.

Thus Mr. Howell St. John looks forward to an ideal state which can be realized only at the millennium. He says (Brussels Congress, 1895), "If the conditions pertaining to the conduct of the insurance departments could be brought so nearly in accord with the principles of enlightened civil service, that the appointment of the commissioners would be confined to men possessed of the requisite learning, ability, and character, if their tenure of office could be rendered independent of the influences of the political doctrine that holds official position as the reward of successful partisan activity, then wise and skillful administration would undoubtedly ensue. . . . It is also true—and much to be regretted—that with the growth of the supervisory scheme, comes also the purpose to extend the plans of paternal (or restrictive) legislation, without regard to the equities of life insurance and administration." Mr. T. B. Macaulay also said (Brussels Congress, 1895): "But after we have said all, it is undeniable that there are grave dangers in even the best conducted system of governmental supervision. At the best it is an edged tool which requires very careful handling. Such regulation of the business may, as we have said be desirable and even necessary under certain circumstances and yet there is a decided possibility that what is, when first introduced, looked upon as a benefit, perhaps even as a necessity, may as a result of a series of encroachments at last so change its character as to become a great evil." Mr. Emory McClintock is reported as follows in the Proceedings of the Brussels Congress: "Dans la question en discussion, les Américains sont en situation de ne pouvoir faire rapport contre eux-mêmes. Mr. McClintock se borne à conseiller aux actuaires à user de leur influence pour réfréner les exigences des départements d'assurances dont certains vont jusqu'à imposer des méthodes

de calculs. Il dit que la loi qui a ordonné l'evaluation des réserves a empêché l'éclosion de nouvelles Compagnies et a donné naissance aux Compagnies Assessment."

These extracts are sufficient: they are the utterances of the recognized leaders of opinion in the United States and Canada. Then again we find insurance commissioners themselves admitting that when they do come across failures among insurance companies they are mostly such as a little publicity would have been able to prevent. The late Mr. Whiting, Insurance Commissioner for the State of New York (London Congress, 1898, Proceedings, p. 346), said: "There was another difficulty in connection with this question of insurance. It is not always undertaken by persons of intelligence, even if their integrity be admitted. Most of the failures with which we had come into contact had been those caused by the want of capacity of the directors or managers." This reminds me of one of Dean Ramsay's Scotch stories. A certain Scotch laird had a son who, as the Scotch would say, "had a bee in his bonnet," that is, he was rather more than half a fool, and the father was talking to a friend one day and telling him that he thought of sending his son to see the world in the hope of sharpening him up; but the friend killed the project effectually when he replied: "But, Lord, will na' the warld see him." Now, if the law required directors or managers of insurance companies who were distinguished by want of capacity to show in appropriate returns a little of the result of their defective management, the world would soon take stock of them and they could not long retain their positions.

When we see, therefore, the feelings of doubt with which government supervision as exercised in the United States and Canada is regarded in these countries, and when, on the other hand, we find that publicity would suffice to cure all the ills from which life insurance is likely to suffer, we may well come to the conclusion that the limits of government supervision should be confined to as small dimensions as possible.

There are other aspects of State supervision to which I might have alluded, as, for example, the natural tendency of all official departments to get fixed in a certain system of routine and of methods and practices to which they become accustomed, and a tendency therefore to the repression of anything that partakes of novelty, inventiveness, or experiment. But this paper has already proceeded to sufficient length. I would only in conclusion venture to say a few words on the benefits which we in Great Britain have received from the system of free competition in life assurance there practised in the hope that the actuaries of those countries which have passed measures of State supervision of the most restrictive and repressive character, may be able to persuade their respective governments to adopt a more liberal attitude.

In respect to foreign competition there are, as Bastiat says, "things which we see," and "things which we do not see." When the American companies came to England, where, I am proud to say, we gave them the same cordial welcome with which our own colonial companies were received, and the same equal treatment which applied to all the home companies, the practice of life assurance, although there were over one hundred companies carrying on the business, was in a somewhat sleepy condition. What we saw was the inconvenience to the official mind of being woke up to a more active state. Thirty years ago, and even less, the office hours of most London life companies were from 10 to 4 o'clock, and it might happen that sometimes there was so little business to do that there was a difficulty in getting through the day comfortably. The

advent of the American companies brought more work to the unfortunate actuaries. The strenuous life is now the universal rule, and the actuary is glad if during the day he has time to take a hasty lunch and is able to catch his evening train between 6 and 7 o'clock. Another thing which we have seen is, I am bound to say, the fact that the rate of expense at which the business is conducted has gone up considerably. We cannot educate the public into the duty of life assurance for nothing. In 1873, a few years after the first American company reached our shores, the ratio of the expenses of all the ordinary companies to the total premium incomes was 13.50 per cent. After 1882 the ratio steadily went up, and in the years 1889, 1890, and 1894 exceeded 15 per cent. (1889, 15.08 per cent.; 1890, 15.32 per cent.; 1894, 15.12 per cent.). Since the last-mentioned year the ratio has as steadily decreased, until, in 1903, it stood at 13.73 per cent., very little in excess of the figure in 1873. But it must be remembered that the great increase of endowment assurance policies carrying heavier rates of premium between the two dates sensibly increases the weight of expenditure even if the ratios were to remain constant, and it is also the case that since 1894 there has been a considerable relaxation in the increase of annual new assurances effected, so far as one can judge from the total amount of assurances current.

On the other hand, there are " things which are not seen," that is to say, things which do not immediately impress themselves on the imagination. I have stated at the beginning of this paper that the total sums assured in force in the year 1902, in all the ordinary British companies was £661,361,442.

In 1873 the corresponding figure was £338,882,752,* so that there has been an increase of insurances in force of £322,478,690, or nearly 100 per cent. in the thirty years, while the population has, in the period from 1871 to 1901, the date of the last census, grown from 31,845,000 to 41,607,000, an increase of slightly over 30 per cent. This leaves out of account the very considerable amount of assurances effected with American and colonial companies, but taking only British companies, it represents a very considerable national benefit. Another thing which we do not see at once is the benefit to the native companies of an extension of the range of investments. It is a narrow view to take that we should wish to retain in our respective countries all the moneys accumulated from life premiums. There are safe trust investments in all countries, and if America possesses a certain amount of these yielding a larger rate of interest than home investments of a like class, you might as well try to mop up the Atlantic as to prevent capital following its normal course of securing the most remunerative return if it is left anything like free play. In so far as American companies had at one time an advantage, in being able to obtain higher rates of interest, which I am afraid they no longer possess, or, if so, only to a small extent, and in so far as this advantage was not counterbalanced by an increase in their rate of expense, this must have redounded to the benefit of their policy-holders. In so far, again, as English and Scotch companies have been led to take advantage of the wider field of investment brought home to them by American competition, they have been able to reap the same advantage of earning a higher rate of interest that the American companies enjoyed, and I believe that since the American companies came amongst

* See Report by Mr. Malcolm and Mr. Hamilton, assistant secretaries to the Board of Trade, printed in Blue Book for the year 1873.

us, there has been a considerable extension of the amounts invested in American securities.

I would only now say in conclusion that I hope that nothing that I have said in criticism of the legislation of other countries will be taken amiss, as I have set down naught in malice. Nor do I suppose that I have been able to write from the standpoint of a native of other countries as it must always be extremely difficult, if not impossible, for a foreigner to appreciate fully the peculiar conditions of life, habits of thought, history, and legislation of other nations than his own. But I hope that what I have said may lead to a better understanding of what is possible in life assurance legislation in carrying out the aims that are common to all of us, and that if there are any nations now inclined to adopt a restrictive policy and to practically exclude foreign life assurance companies from carrying on business in their midst, the day is not far off when, by common international agreement, the idea that this can be a benefit to the citizens of their country may be inscribed among the most enduring of the *Sophismes économiques.*

APPENDIX I.

First Schedule (Shareholders' Funds).

Revenue Account of the.....for the year ending.....

(Date)			(Date)		
	Amount of Fund at the beginning of the year			Dividends and Bonuses to shareholders	
	Interest and Dividends.....			Other payments (accounts to be specified).....	
	Other receipts (accounts to be specified).....			Amount of Fund at the end of the year as per second Schedule.....	
	£			£	

Second Schedule (Shareholders' Fund).

Balance Sheet of the.....on the.....19....

Liabilities	£ s. d.	*Assets*	£ s. d.
Shareholders' Capital, Authorized, £		Mortgages on property within the United Kingdom.	
Issued.....£		" " out of the United Kingdom..	
Less uncalled.....£		Investments:	
Other Funds (if any, to be specified).....		In British Government Securities.....	
Other sums owing by the Company (accounts to be specified).....		" Indian and Colonial Government Securities...	
Dividends outstanding.....		" Foreign Government Securities.....	
		" Railway and other debentures and debenture stocks..	
		" " shares (preference and ordinary) ...	
		" House property.....	
		" Other investments (to be specified).....	
		Interest accrued, but not yet payable.....	
		Outstanding interest.....	
		Cash	
		On Deposit.....£.....	
		In hand and on Current Account, £.....	
		Other Assets (to be specified).....	
£		£	

NOTE.—The same amount of detailed information is not required as to the investment of Shareholders' Funds, as in the case of the Assurance Fund, it being assumed that shareholders are sufficiently able to look after their own interests.

TABLE B.

Statement of Landed and House Property, owned by the Company, forming part of Assets of Assurance Fund.

Address or Description of Various Properties	Ledger Value	Net Income, less Expenses, and Income Tax, during the year
1		
2		
3		
&c.		
£		*

* This total should agree with the amount set out in Table A.

Second Schedule (Assurance Fund).

Balance Sheet of the.....on the.....19.....

Liabilities	£ s. d.	*Assets*	£ s. d.	‡ Rate of Interest
Assurance Fund.....£.....		Mortgages on property within the United Kingdom		
Annuity Fund (if any).....		" " out of the United Kingdom		
Other Funds (if any, to be specified).....		Loans on Rates, Tolls, &c.....		
Total Funds, as per First Schedule.....		Loans on Life Interests.....		
Claims admitted, but not paid*.....		Loans on Reversions.....		
Other sums owing by the Company* (accounts to be specified).....		Loans on Miscellaneous security.....		
		Loans on personal security.....		
		Loans on the Company's Policies.....		
		Investments:		
		In British Government Securities.....		
		" Indian and Colonial Government Securities..		
		" Foreign Government Securities.....		
		" Home Railway Debentures and Debenture Stocks.....		
		" " " Preferred Stocks.....		
		" " " Ordinary Stocks.....		
		" Indian & Colonial Railway Debenture and Preference Stocks.....		
		" " " Ordinary.....		
		" American Railway Stocks and Bonds.....		
		" Other Foreign " "		
		Reversions purchased.....		
		Life Interests purchased.....		
		Landed and House Property†.....		
		Other investments (to be specified).....		
		Agents' balances.....		
		Interest accrued, but not yet payable.....		
		Outstanding premiums.....		
		" interest.....		
		Cash:		
		On Deposit.....£.....		
		In hand and on Current Account, £.....		
		Other assets (to be specified).....		

* NOTE.—These items are included in the corresponding items in the First Schedule.
‡ Insert the rate which each class of security is yielding at the end of the year, without deduction of Income Tax. † See Table B.

Summary and Valuation of the Policies of the ..... as at .....19 .

Description of Transaction	Particulars of the Policies for Valuation						Valuation				
							Valued by the ..... Table, Interest ..... per cent.				
	Number of Policies	Sums Assured	Bonuses	Office (*) Yearly Premiums	Difference between Net Yearly Premiums and Office Premiums	Excess of Premiums payable over non-participating Office Premiums for same amount of Assurance	Sums Assured	Bonuses	Office Yearly Premiums	Difference between Net Yearly Premiums and Office Premiums	Excess of Premiums payable over non-participating Office Premiums for same amount of Assurance
Assurances	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
I. With participation in profits:											
For whole term of life.....											
Other classes (to be specified).....											
Extra premiums payable.....											
Total Assurances with profits less the Assurances.....											
Net Assurances with profits.....											
II. Without participation in profits:											
For whole term of life.....											
Other classes (to be specified).....											
Extra premiums payable.....											
Total Assurances without profits less the Assurances.....											
Net Assurances without profits..											
Net amount of Assurances.....											
Annuities											
Immediate											
Other classes (to be specified).....											
Total of the results, £											

NOTE.—The term "net premium" in this Act shall be taken to mean the premium required to provide for the risk assured calculated according to the Table of Mortality and the rate of Interest employed in the Valuation. The term "extra premium" in this Act shall be taken to mean the charge for any risk not provided for in the minimum contract premium. If policies are issued in or for any country at rates of premium deduced from Tables other than the European Mortality Tables adopted by the Company, separate Schedules similar in form to the above must be furnished.

* If Bonuses are distributed in the shape of annual reductions of premium, an additional column must be given to show these.

Valuation Balance Sheet of.....as at.....19.....

Dr.	£	Cr.	£
To value of sums assured and Bonuses.....		By value of future Office premiums on Assurances...	
" " Annuities payable or to become payable.....		" " " " " Annuities....	
" " Loading reserved.....		" Assurance and Annuity Funds.....	
" Adjustments:		" Deficiency (if any).....	
(*a*) For incidence of premium income.....			
(*b*) For payment immediately on death.....			
(*c*) For extra risk.....			
" Surplus (if any).....			
£		£	

TABLE A.

Analysis of Interest and Dividend Receipts.

Class of Security	Amount of interest less tax	Mean of amounts invested at beginning and end of year	Yield by formula $\frac{2I}{A+B-I}$*
Mortgages on property within the United Kingdom			
Mortgages on property out of the United Kingdom			
Loans on Rates, Tolls, &c.			
Loans on Life Interests			
Loans on Reversions			
Loans on miscellaneous security			
Loans on personal security			
Loans on the Company's Policies			
Investments:			
In British Government securities			
" Indian and Colonial "			
" Foreign "			
" Home Railway Debentures and Debenture Stocks			
" Home Railway Preference and Debenture Stocks			
" Home Railway Ordinary and Debenture Stocks			
" Indian and Colonial Railway Debenture and Preference Stocks			
" Indian and Colonial Railway Ordinary and Preference Stocks			
" American Railway Stocks and Bonds			
" other Foreign " "			
Reversions purchased			
Life Interests purchased			
Landed and House Property			
Other investments to be specified			
	†		

* A = Fund at beginning of year. B = Fund at end of year. I = Total interest for year.
† This total must agree with the amount in Revenue Account.

First Schedule (Assurance Fund)

Revenue Account of the.....for the year ending.....

19 (Date)		£ s. d.	19 (Date)		£ s. d.
	Amount of Funds at the beginning of the year			Claims under Policies (after deduction of sums re-assured):	
	First Year's Premiums:			(*a*) Payable on death	
	Single[1] .....£.....			(*b*) " at maturity.....	
	Annual .....£.....			Surrenders and Allowances on account of Lapses:	
	Renewal Premiums.....			(*c*) Paid in Cash.....	
	Consideration for Annuities granted.....			(*d*) " by transfer to account for single premiums	
	Interest and dividends[2].....£.....			Annuities	
	Less Income tax.....			Commission on new premiums.....	
	Net			" on Renewal Premiums.....	
	Profit on realization of Investments.....			Expenses of Management.....	
	Profit on Investments written up.....			Dividends and Bonuses to Shareholders (if any)	
	Other receipts (accounts to be specified)....			Loss on realization of securities.....	
				Amount written off Book value of securities	
				Other payments (accounts to be specified)..	
				Amount of funds at the end of the year, as per Second Schedule.....	
	£			£	

NOTE.—Items in this Schedule should be the net amounts after deduction of the amounts paid and received in respect of re-assurances. (1) These should include the Single Premiums on term assurances for one year or less, and also the Premiums carried to account in respect of Paid up insurances granted in lieu of policies lapsed or surrendered. (2) For details, see Table A.

APPENDIX II.

TABLE I.

1	2	3	4
Age at entry	Assumed Office Premiums for a whole life "non-profit" assurance of £100	Assumed Office Premiums for a whole life "with profits" assurance of £100	Excess of Participating premiums over non-participating premiums Col. (3)—Col. (2)
20	1.688	2.104	.416
25	1.813	2.258	.445
30	2.038	2.513	.475
35	2.338	2.838	.500
40	2.742	3.271	.529
45	3.275	3.829	.554
50	3.963	4.538	.575
55	4.904	5.483	.579
60	6.192	6.771	.579
65	7.925	8.504	.579

NOTE.—The without-profit premiums are those known as Dr. Sprague's standard office premiums.

The with-profit premiums are the same premiums modified to provide for a compound reversionary bonus.

With regard to these rates of premium reference is made to Mr. H. W. Andras's paper "On the system of bonus distribution to policy holders, etc."—J. I. A., Vol. XXXII., p. 320.

TABLE II.

Mr. King's Model Office No. 1. Age of Office, 50 years.

1	2	3	4	5
Central age at entry	Total sums assured	Total assumed office premiums if all policies effected on non-profit scale Table I.	Total assumed office premiums if all policies effected on with profit scale Table I.	Excess of participating premiums over non-participating premiums Col. (4)—Col. (3)
20	164,584	2,778	3,464	686
25	497,503	9,017	11,234	2,217
30	594,800	12,119	14,945	2,826
35	495,736	11,588	14,067	2,479
40	339,949	9,320	11,119	1,799
45	206,179	6,752	7,894	1,142
50	120,589	4,778	5,471	693
55	58,906	2,888	3,229	341
60	27,106	1,678	1,835	157
65	10,272	814	873	59
	2,515,624	61,732	74,131	12,399

NOTE.—The figures in Column 2 are extracted from Table IV. in Mr. King's paper, entitled: . . . . "On the comparative reserves of Life Assurance Companies, according to various Tables of Mortality, at various rates of interest."—J. I. A., Vol. XXXVII., p. 453.

TABLE III.

Mr. King's Model Office No. 1. Age of Office, 50 years.

Central age at entry	Total net premiums required by the undernoted tables			Percentages of total Office non-profit premiums available for future expenses and profits if net premium is calculated by the undernoted tables			Percentages of total Office with-profit premiums available for future expenses and profits if net premium is calculated by the undernoted tables		
	$H^m.03$	$H^m.035$	$H^m.04$	$H^m.03$	$H^m.035$	$H^m.04$	$H^m.03$	$H^m.035$	$H^m.04$
20	2,349	2,189	2,048	15.4	21.2	26.3	32.2	36.8	40.9
25	8,084	7,566	7,104	10.3	16.1	21.2	28.0	32.6	36.8
30	11,179	10,521	9,929	7.7	13.2	18.1	25.2	29.6	33.6
35	10,870	10,289	9,761	6.2	11.2	15.8	22.7	26.8	30.6
40	8,802	8,381	7,994	5.5	10.1	14.2	20.8	24.6	28.1
45	6,419	6,154	5,907	4.9	8.8	12.5	18.7	22.0	25.2
50	4,582	4,422	4,270	4.1	7.4	10.6	16.2	19.2	22.0
55	2,783	2,702	2,626	3.6	6.4	9.1	13.8	16.3	18.7
60	1,623	1,585	1,549	3.3	5.5	7.7	11.5	13.6	15.6
65	791	777	763	2.8	4.5	6.2	9.4	11.0	12.6
	57,482	54,586	51,951	6.9	11.6	15.8	22.4	26.3	29.9

TABLE IV.

Mr. King's Model Office No. 1. Age of Office, 50 years.
Valuations by H Table. Interest, 3%.

Central age at entry	Value of Sums Assured	Value of $H^m.03$ net premiums	Value of assumed Office non-profit premiums	Value of difference between participating and non-participating premiums
20	78,967	41,953	49,604	12,249
25	258,827	133,164	148,529	36,532
30	330,750	170,394	184,718	43,062
35	292,776	152,799	162,882	34,841
40	212,144	113,609	120,306	23,221
45	135,109	75,979	79,913	13,523
50	83,388	48,542	50,613	7,344
55	42,883	25,990	26,978	3,186
60	20,646	13,279	13,733	1,285
65	8,209	5,455	5,611	410
	1,463,699	781,164	842,887	175,653

TABLE V.

Mr. King's Model Office No. 1. Age of Office, 50 years.
Valuations by Hm Table. Interest, 4%.

Central age at entry	Value of Sums Assured	Value of H^m .04 net premiums	Value of assumed Office non-profit premiums	Value of difference between participating and non-participating premiums
20	64,917	32,250	43,730	10,798
25	216,945	104,156	132,209	32,518
30	281,692	135,894	165,869	38,669
35	252,971	124,270	147,534	31,558
40	185,753	94,279	109,915	21,216
45	119,712	64,410	73,629	12,460
50	74,910	42,061	47,063	6,829
55	39'052	23,010	25,313	2,990
60	19,032	11,996	12,996	1,216
65	7,672	5,022	5,357	392
	1,262,656	637,348	763,617	158,646

TABLE VI.

Mr. King's Model Office No. 1. Age of Office, 50 years.

Assumptions as to nature of business transacted	Results of Valuation by H^m Tables		
	Margin reserved for future expenses and profits	Rate of Interest	
		3%	4%
		Net Liability	
		Central Valuation	Central Valuation
	Difference between annual office premiums and H^m net premiums calculated at valuation rate of interest	682,535	625,308
		High Water mark Valuations	Low Water mark Valuations
Non-participating only..	10% of office premiums.....	705,101	575,401
With participation only.	7½% of office premiums, plus the difference between the with and non-participation premiums	697,203	568,208
70% with participation . 30% non-participation ..	The same proportions of premiums as above for non-participating and participating business respectively.	699,572	570,306

NOTE.—It is assumed that a charge of 2½% on the Office premiums will be sufficient to cover the cost of renewal commission. (See pp. 382 and 395.)

RÉSUMÉ.

LE CONTRÔLE DE L'ÉTAT SUR LES COMPAGNIES D'ASSURANCES SUR LA VIE, DOIT-IL S'EXERCER.

Par James Chisholm.

L'auteur de cet article divise son sujet en trois sections. Dans la première, la section A, il expose les fonctions qui, d'un commun accord, incombent nécessairement au Gouvernement ou les devoirs qui, d'après lui, devraient être assignés au Gouvernement par consentement général. Il suppose que l'on accepte communément comme nécessaire le principe de l'autorisation préalable avant qu'une compagnie d'assurance sur la vie soit autorisée à faire des affaires et il propose les conditions suivantes pour l'obtention de cette autorisation préalable.

1. Que le dépôt d'une somme modérée fixe soit requise de toutes les compagnies, qu'elles soient indigènes Coloniales ou Étrangères, faisant des affaires dans le pays.

2. Que toutes les compagnies soient requises d'envoyer au Bureau des Assurances des copies des statuts ou chartes d'incorporation d'après lesquels elles sont établies ainsi que de leurs règles et conditions. Le devoir de ce Bureau devrait être de voir qu'il n'y ait rien dans ces statuts etc., qui puisse empêcher la Compagnie de se soumettre légalement aux nécessités des lois du pays dans lequel elle se propose de faire des affaires. Le bureau devrait particulièrement veiller à ce que rien dans les statuts ne donne à une classe particulière d'assurés un droit privilégié à une portion quelconque des ressources d'une compagnie. L'existence d'un tel droit privilégié devrait causer la révocation de la concession.

"A ce congrès-ci je crois que nous pouvons nous baser sur le fait que les principes énoncés par MM. Adan et Le Jeune ont été admis par tous les orateurs dans la discussion qui a eu lieu au Congrès de Londres, que leurs raisonnements n'ont jamais été refutés et en l'absence de tout article défendant le point de vue contraire, nous devons admettre que l'action des Gouvernements qui ont introduit ou se proposent d'introduire des lois restrictives de ce genre est silencieusement condamné par les Actuaires et les Experts de leurs pays respectifs.»

3. Que chaque compagnie soit requise d'enregister au Bureau des Assurances des copies du Prospectus ou des Prospectus et des imprimés de Polices dans les termes dont elle se sert pour faire ses affaires. Le Bureau devrait se faire un devoir d'examiner ces prospectus et imprimés de polices pour se rendre compte s'ils expriment clairement et fidèlement, et en termes tels que la masse puisse les comprendre, la constitution fondamentale de la compagnie, les garanties qu'elle offre à ses assurés et les taux et conditions auxquels elle émet ses polices.

4. Que le Bureau des Assurances soit chargé d'examiner les rapports que les compagnies doivent fournir et de s'assurer qu'ils sont sous la forme prescrite par la loi. Si une compagnie négligeait de fournir ces rapports ou de se conformer à n'importe quelle condition prévue par la loi, le Bureau devrait pouvoir de lui même ou après un avertissement légal, citer la compagnie à la barre d'un Tribunal pour lui faire subir un examen judiciaire.

5. Que chaque Compagnie Coloniale ou Étrangère ait à établir un domicile dans le pays ou elle fait des affaires. L'auteur suggère à ce propos un plan qui faciliterait le paiement des assurances en cas de guerre entre deux pays.

6. Que les services du Bureau d'Assurances, bien que ce ne soit pas un de ses devoirs essentiels, soient utilisés comme une sorte de chambre de compensation pour distribuer entre les compagnies le coût net des risques qu'elles encourent dans une grande guerre et les justes dépenses compensatoires.

La section B de l'article traite surtout des amendements suggérés à l'acte de 1870 sur les compagnies anglaises d'assurance sur la vie. Les suggestions principales sont (1) qu'on devrait donner avec plus de détails les renseignements qui ont trait aux ressources, de manière à ce que la publicité puisse être aussi effective en ce qui regarde ce côté de la question qu'elle l'est actuellement en ce qui regarde l'évaluation des risques; (2) qu'il faudrait faire certifier par des Auditeurs compétents et indépendants l'exactitude des comptes, et par l'actuaire, la plénitude des rentrées et l'exactitude de l'évaluation; (3) que les compagnies devraient être requises de fournir des renseignements (et il n'en faudrait que bien peu, en plus de ceux qui sont maintenant fournis d'après l'Acte Anglais) qui permettraient à tout Actuaire ou comptable de déduire, avec très peu de peine, des balances d'évaluation pour chaque compagnie. L'auteur écrit à ce sujet:

"On observera que la méthode que je propose évite le mal qui résulte d'établir n'importe quel étalon defini pour fixer des tables spécifiques de mortalité, des

taux d'intérêt ou la Réserve. Au lieu d'avoir à surveiller soigneusement, comme il est nécessaire de le faire avec les renseignements fournis sous l'Acte Anglais actuel, chaque détail de bases multiples et de méthodes employées par les compagnies dans leurs évaluations, et d'avoir à mesurer, quand on le peut, les relations de l'une à l'autre, nous permettons à chaque compagnie de faire son évaluation à peu près comme il lui plaît, et nous basons ensuite notre jugement d'après le résultat final, cherchant dans quelle position la Compagnie se trouve placée entre les résultats d'une évaluation empirique placée à une limite plus ou moins élevée, et ceux qui sont donnés par une évaluation centrale (c'est à dire une prime nette). Ceci est une méthode beaucoup plus facile et en même temps beaucoup plus efficace d'estimer la valeur financière d'une compagnie d'assurance sur la vie que celles auxquelles nous sommes réduits jusqu'à présent.»

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« Je voudrais donner au Board of Trade le pouvoir, lorsqu'une compagnie a atteint cette limite (la plus basse),* ou lorsqu'elle ne pourrait l'éviter qu'en augmentant le taux de l'intérêt employé au delà de ce qu'elle avait elle-même choisi volontairement à la dernière évaluation précédente, d'amener la compagnie en justice pour un examen de ses affaires, et il devriendrait alors une matière d'appréciation judiciaire de savoir quelle liberté ultérieure on peut lui accorder.»

L'auteur joint à son article des imprimés comptes de Revenue et de Feuille de solde pour les Actionnaires et les Fonds d'Assurance respectivement, ainsi que des imprimés de sommaire d'Évaluation et de Feuille de Solde de comptes et demande si le temps n'est pas venu maintenant de nommer un comité pour considérer la possibilité d'adopter un imprimé semblable de comptes et des Profits qu'on emploierait dans tous les pays en y apportant les légères modifications que peuvent nécessiter les différences dans les manières de traiter les affaires.

La section C de l'article est consacrée à la considération du système de surveillance par l'État tel qu'il est pratiqué aux États-Unis et en Suisse. L'auteur pose les principes suivants qu'il étaye par des exemples tirés des lois américaines et suisses.

1. La législation manque son but ou s'en éloigne lorsqu'elle limite ou gêne sans nécessité l'action des compagnies.

2. La législation est également mauvaise si elle a pour base des idées incorrectes de la solvabilité des compagnies d'assurance.

3. Une autre source du mal existe lorsque la législature impose au Bureau des Assurances des devoirs dont il est par leur nature incapable de s'acquitter complètement et l'État se charge en conséquence de devoirs qu'il peut être conduit à répudier.

4. La législation peut être vicieuse si elle adopte des méthodes défectives ou incorrectes pour obtenir des résultats qui sont en eux mêmes bons et légitimes.

5. La législation peut aussi occasionner du mal si elle est défective en sa forme et oublie des matières d'importance.

6. Il y a une tendance inhérente à réduire au minimum l'importance des détails et de leur prêter une attention moins que suffisante toutes les fois que le Gouvernement d'un pays pousse la surveillance à l'excès et se charge pratiquement du fardeau de la responsabilité entière de l'administration des compagnies.

L'auteur cite en concluant les autorités les plus connues des États-Unis et du Canada pour montrer que même dans ces pays on regarde avec une forte méfiance le système de surveillance de l'État et qu'on ne l'accepte qu'à défaut de quelque chose de mieux et non pas comme un idéal d'arrangement parfait.

KURZE NOTIZ.

DAS GEBIET DER STAATLICHEN KONTROLLE ÜBER DIE LEBENS-VERSICHERUNGS-GESELLSCHAFTEN, ENTWEDER.

VON JAMES CHISHOLM.

Der Verfasser dieses Berichts zertheilt den Gegenstand in drei Abtheilungen. In der ersten von diesen legt er die Funktionen klar (Paragraph A), die mit allgemeiner Uebereinstimmung nothwendiger Weise einer Regierung obliegen müssen, sowie die Pflichten, die seiner Meinung nach durch ein gemeinsames Abkommen

* Il ne faut pas prendre les limites d'évaluation, soit hautes soit basses, comme des étalons de solvabilité. On peut les établir à n'importe quel taux d'intérêt qu'il plaît à la compagnie, pourvu que ce taux ne dépasse pas celui que la compagnie retire de ses placements.

jedenfalls dem Staate werden auferlegt werden. Er nimmt an, dass das Prinzip einer Concession als nothwendig betrachtet werden muss, ehe eine Lebens-Versicherungs-Gesellschaft die Erlaubnis zur Ausführung ihres Geschäfts erhält, und er schlägt folgende Bedingungen vor, unter welchen eine Concession gewährt werden sollte:

1. Eine Caution in mässiger festgesetzter Summe sollte von allen Gesellschaften verlangt werden, sei es eine einheimische, Colonial- oder fremde Gesellschaft.

2. Alle Gesellschaften sollten ersucht werden, zum Amt des Versicherungswesens Abschriften ihrer Statuten oder Certifikat der erfolgten Vereinigung zu senden, unter welchen sie etabliert sind, sowie auch Abschriften ihrer Vorschriften und Verordnungen; es sollte dann die Pflicht des Versicherungsamts sein, darauf zu sehen, dass diese Statuten etc. nichts enthalten, was die Gesellschaft verhindern könnte, den Anforderungen des Gesetzes des Landes zu entsprechen, in welchem sie Operationen aufzunehmen gedenkt. Ganz besonders sollte das Versicherungs-Amt darauf achten, dass in den Statuten nichts enthalten ist, was einer speciellen Abtheilung der Versicherten das Privilegium irgend eines Antheils der Einkünfte einer Gesellschaft gewährt, und das Vorhandensein irgend solcher Rechte sollte das Verwirken der Concession nach sich ziehen.

„Bei diesem Congress denke ich sind wir berechtigt, unsern Standpunkt „auf der Thatsache aufzubauen, dass die Prinzipien, welche von Herren M. „Adan und Le Jeune aufgestellt waren, von allen Rednern in der Diskussion „auf dem Londoner Congress angenommen worden waren, dass ihre Begrün„dungen niemals widerlegt wurden, und mit dem Fehlen irgend eines Rapports, „welches einen gegentheiligen Standpunkt einnimmt, müssen wir wohl annehmen, dass das Vorgehen solcher Regierungen, die eine beschränkende Gesetz„gebung dieser Art eingeführt haben oder wenigstens beabsichtigten, schwei„gend von den Statistikern und Sachverständigen der respectiven Länder ver„urtheilt wurde."

3. Jede Gesellschaft sollte dazu angehalten werden, an das Versicherungs-Amt eine Copie ihres Prospects oder ihrer Prospecte zu übergeben, sowie der Form der Policen, auf Grund welcher sie ihr Geschäft macht, und es sollte die Pflicht des Versicherungs-Amtes sein, diese Prospecte zu untersuchen und auch die Policen-Formen, um zu sehen, ob sie klar und genau und für jedermann verständlich die grundsächlichen Einrichtungen der Gesellschaft angeben, die Garantie, welche sie den Versicherten bietet und die Raten und Bedingungen, unter welchen die Contracte abgeschlossen werden.

4. Das Versicherungs-Amt sollte damit beauftragt werden, die Berichte, welche die Gesellschaften zu machen verpflichtet sind, zu untersuchen, um zu sehen, ob diese auch der Gesetzes-Form entsprechend abgefasst sind. Wenn irgend welche Abweichung eintreten sollte, sei es dass die Berichte nicht geliefert werden oder eine Bedingung des Gesetzes nicht eingehalten wird, sollte das Versicherungs-Amt bevollmächtigt werden, nach Ertheilung einer diesbezüglichen Notiz, auf eigene Faust die Gesellschaft vor ein Gericht zur gerichtlichen Untersuchung zu citieren.

5. Jede einheimische und fremde Gesellschaft sollte gezwungen werden, einen Wohnsitz in dem Lande aufzuschlagen, in welchem sie Geschäfte macht, und der Verfasser schlägt ein Project vor, bei welchem im Kriegsfalle zwischen zwei Ländern die Zahlung der Forderungen und Ansprüche erleichtert werden könnte.

6. Obgleich nicht eine unbedingt nothwendige Pflicht eines Versicherungs-Amts, so sollten die Dienste desselben doch, wie der Verfasser empfiehlt, dafür in Anspruch genommen werden, ein Abrechnungshaus zu bilden für die Taxierung der Kosten einer Gesellschaft für ein während eines grösseren Krieges übernommenes Risiko, und für die Autorisation der Erhebung und Vertheilung der geeigneten Entschädigungs-Berechnungen.

Paragraph B des Berichts beschäftigt sich namentlich mit vorgeschlagenen Verbesserungen des Gesetzes für die Britischen Lebensversicherungs-Gesellschaften von 1870. Die Haupt-Vorschläge sind 1., dass mehr detaillierte Auskünfte über die Einnahmen ertheilt werden sollten, sodass die Oeffentlichkeit nach dieser Richtung hin ebenso wirksam sein könnte, wie sie jetzt bezüglich der Schätzung der Verbindlichkeiten ist, 2., dass Bescheinigungen von rechtmässig qualifizierten und unabhängigen Revisoren über die Richtigkeit der Rechnungsführung verlangt werden, wie auch vom Statistiker über die Vollständigkeit der Berichte und die Genauigkeit der Werthe, 3., dass Auskunft von den Gesellschaften verlangt werden sollte (und in der That sehr wenig mehr wird hier verlangt, als was in dem gegenwärtigen britischen Gesetz vorgeschrieben ist), die irgend

welchen Statistiker oder Bücherrevisor ohne viel Schwierigkeit in den Stand setzen würde, zwei Werthe-Bilanzen für jede Gesellschaft herzuleiten.

Hierüber schreibt der Verfasser:

„Man wird bemerken, dass die Methode, die ich vorschlage, dem Uebel „einer Aufstellung irgend welcher Massstäbe abhelfen wird, die eine specifi- „zierte Sterblichkeits-Tabelle, Zinsraten oder die Reserve der Belastung an- „giebt. An Stelle einer vorsichtigen Ueberwachung, die jetzt den Informa- „tionen zu Theil werden muss, welche auf Grund des gegenwärtigen britischen „Gesetzes gegeben werden, mit Rücksicht auf die vielfachen Grundlagen und „Methoden, die von den einzelnen Gesellschaften für ihre Werthe benutzt „werden, und mit Rücksicht auf die Schätzung der gegenseitigen Beziehungen, „wenn wir solche vornehmen können, hat jede Gesellschaft das Recht, ihre „Werthe gewissermassen ganz nach Belieben festzustellen, und sie kann dann „nach dem erfolgten Resultate urtheilen, in welcher Stellung sich eine Gesell- „schaft befindet im Vergleich des Resultats einer erfahrungsgemässen Schät- „zung zu einer höheren oder niedrigeren Rate, mit dem Resultat, dass sich aus „der centralen Schätzung (d. h. Netto-Prämien-Werthes) ergiebt. Dies ist „eine viel leichtere und zur gleichen Zeit mehr vollkommene Methode, um die „finanzielle Stärke einer Lebens-Versicherungs-Gesellschaft zu beurtheilen, als „die, auf welche wir jetzt angewiesen sind."

Die Grenzen eines Werthes entweder hoch oder gering müssen nicht als Maassstab von Solvenz angesehen werden. Sie können zu irgend einer Zinsrate angegeben werden, welche der Gesellschaft gefällt, unter der Voraussetzung, dass solche Rate nicht die Rate übersteigt, welche die Gesellschaft bei ihren Capitals-Anlagen erzielt.

„Ich würde die Handelskammer bevollmächtigen, wenn eine Gesellschaft „die niedrige Grenze erreicht hat, oder wenn sie dies nur durch Erhöhung des „Zinsfusses vermeiden kann über die Rate, die sie selbst bei der vorher- „gehenden letzten Abschätzung freiwillig gewählt hat, diese zur Untersuchung „ihrer Angelegenheiten vor ein Gericht zu citieren, und es liegt dann an der „gerichtlichen Berücksichtigung der Sache, in wieweit der Gesellschaft wei- „terhin Freiheit gegeben werden kann."

Der Verfasser fügt seinem Berichte Formen für Einkommen-Berechnung und Bilanz für die Aktionäre respective den Versicherungs-Fonds bei, sowie auch Formen des summarischen Werthes und Werth-Bilanz, und fragt an, ob die Zeit noch nicht gekommen ist, um ein Comité zu berufen, um über die Möglichkeit der Adoptierung ähnlicher Formen von Berechnungen und Berichten in allen Ländern zu verhandeln mit solch' geringen Abänderungen, als solche infolge der verschiedenen Arten der Geschäftsführung nothwendig sind.

Paragraph C des Berichts ist der Ueberlegung über ein System der staatlichen Beaufsichtigung, wie es in den Vereinigten Staaten geschieht, und in der Schweiz, gewidmet, und der Verfasser macht folgende Vorschläge, die er durch Illustrationen aus dem amerikanischen und schweizerischen Gesetz bekräftigt:

1. Die Gesetzgebung hat absolut keinen Einfluss oder aber geht von ihrem Zwecke dadurch ab, wenn sie unnöthigerweise die Handlung der Gesellschaften beschränkt oder hindert.

2. Die Gesetzgebung würde ebenfalls Unheil anrichten, wenn sie von uncorrecten Ideen über die Bedingungen der Solvenz einer Versicherungs-Gesellschaft ausgeht.

3. Weiteres Unheil würde entstehen, wenn die Gesetzgebung einem Versicherungs-Amt Pflichten auferlegt, die der Natur der Sache nach nicht zur Vollkommenheit erfüllt werden können, und muss der Staat die Verpflichtung übernehmen, welche zurückzuweisen ein Versicherungs-Amt gezwungen ist.

4. Die Gesetzgebung begeht ferner einen Fehler, wenn sie unzweckmässige oder uncorrecte Methoden annimmt, um Absichten durchzuführen, welche an sich angebracht und gesetzlich sind.

5. Die Gesetzgebung würde ebenfalls Unheil erzeugen, wenn sie fehlerhaft in ihrem Entwurf ist und wichtige Sachen nicht einbegreift.

6. Es besteht eine anhaftende Tendenz, die Wichtigkeit von Details geringfügig zu machen und denselben nicht die gebührende Aufmerksamkeit zu schenken, wenn die Regierung eines Landes die Beaufsichtigung übertreibt und gewissermaassen die ganze Verantwortlichkeit für die Leitung einer Gesellschaft auf eigene Schultern nimmt.

Zum Schluss citiert der Verfasser Autoritäten in den Vereinigten Staaten und Canada und zeigt, dass selbst in diesen Ländern das System der staatlichen Aufsicht mit bedeutender Besorgnis betrachtet wird und nur in Ermangelung von etwas Besserem acceptiert wird, durchaus nicht als ein ideales oder vollkommenes Arrangement.

FORME DONNÉE EN SUISSE AU CONTRÔLE DE L'ÉTAT SUR LES SOCIÉTÉS D'ASSURANCES SUR LA VIE.

PAR F. ROSSELET,

Actuaire au Bureau Fédéral des Assurances, Berne.

Il faut savoir gré aux organisateurs du IV^e^ Congrès international d'actuaires d'avoir inscrit au programme de ce Congrès la question fort controversée de la forme à donner à la surveillance officielle des sociétés d'assurances sur la vie.

Le Congrès de Bruxelles, en 1895, a posé la question de l'intervention du législateur pour permettre ou assurer le contrôle de la solvabilité des compagnies d'assurances sur la vie, et les rapporteurs dans cette question, MM. William St. John et Macaulay, se sont principalement appliqués à montrer la nécessité et les effets d'une surveillance officielle sans entrer dans une critique des différentes formes que pouvait revêtir cette surveillance.

Les rapports présentés au Congrès de Londres en 1898 ont exposé l'état de la législation en matière d'assurances sur la vie dans les divers États, mais sans avoir pour objectif principal de justifier ou seulement d'expliquer le mode de surveillance choisi, s'il y avait lieu.

C'est donc par une suite toute logique que l'on a été amené à mettre à l'étude la question de la forme à donner à la surveillance de l'État. Néanmoins, il y a eu, de la part des organisateurs du IV^e^ Congrès, une certaine hardiesse à le faire. Car s'il ne saurait y avoir de grandes divergences de vues sur le but à poursuivre par toute surveillance officielle, les avis peuvent, en revanche, différer sur le mode d'exécution, et chacun sait qu'en ceci les avis diffèrent, en effet, grandement.

Convient-il toutefois au représentant d'un petit pays qui a institué depuis assez longtemps un certain mode de surveillance, de traiter ici la question proposée avec toute l'ampleur qu'elle comporte, et de faire un examen critique des systèmes adoptés dans les différents pays de ses collègues du Congrès? Sans compter que les connaissances nécessaires et les compétences lui manqueraient pour porter un jugement définitif sur ce qui se fait en dehors de son pays, ne serait-il pas suspect de préjugé, lorsqu'il fait partie de l'autorité qui a mission d'exercer le contrôle officiel, et de prévention à l'endroit de tout ce qui, à l'étranger, ne rime pas avec les institutions qu'il connaît plus spécialement? Quoique sûr d'être lu et jugé par mes collègues avec la même impartialité et la même franchise bienveillante que j'aurais mises dans l'exposé de mes critiques, je pense néanmoins que l'actuaire, comme tout autre mortel, est plus accessible aux enseignements de l'expérience qu'aux déductions théoriques et de valeur toujours discutable d'une imagination plus ou moins fertile.

Ces considérations m'ont engagé à m'abstenir de toute critique directe qui ne soit pas le résultat de faits positifs, et à restreindre mon rapport à l'exposé du mode de surveillance adopté en Suisse, des motifs qui ont prévalu en faveur de ce système de contrôle, et du fonctionnement de la surveillance fédérale. Je chercherai à faire ressortir les points qui caractérisent le système suisse de contrôle, sans perdre

de vue la forme de la question posée par le Congrès, et à en montrer les résultats pour autant qu'ils sont tangibles.

La question telle que je me la propose se trouve ainsi considérablement réduite. Elle se simplifie pour moi encore beaucoup par le fait que j'ai, pour me guider, les rapports officiels du Bureau fédéral des assurances, où M. le Dr. Kummer, directeur de celui-ci, a traité tour à tour, depuis la création du bureau, avec le talent et les hautes compétences que chacun lui reconnaît, les différents éléments qui constituent l'essence de notre mode de surveillance officielle. Mon travail est donc sur beaucoup de points une compilation des idées émises et des faits énoncés dans les dits rapports officiels. Sur ces points-là, je puis donc être bref et m'en référer aux rapports en question. Je rends ainsi un respectueux hommage à mon vénéré directeur, à l'homme qui a été l'instigateur et l'âme de la surveillance des sociétés d'assurances par la Confédération suisse et à qui revient tout le mérite des brillants résultats obtenus jusqu'ici dans l'exécution de cette surveillance.

* * *

La surveillance des sociétés d'assurances en Suisse est statuée en principe dans l'art. 34, 2e alinéa, de la Constitution fédérale, dont voici la teneur:

« Les opérations des agences d'émigration et des entreprises d'assurances non instituées par l'État sont soumises à la surveillance et à la législation fédérales.»

La loi fédérale du 25 juin 1885, la loi qui règle encore aujourd'hui la surveillance des entreprises privées en matière d'assurance a été promulgée en exécution de cet article de la Constitution.

Quoique extrêmement sobre de dispositions, cette loi n'est accompagnée de règlements d'exécution que concernant deux points: le cautionnement à déposer et la contribution à payer à la Confédération par les sociétés d'assurances. Une grande liberté de mouvement semble donc être laissée à l'autorité chargée de son exécution. Chacun pourra juger si cette latitude d'appréciation octroyée au gouvernment a eu de mauvais effets ou si, au contraire, elle ne lui a pas permis et ne lui permet pas toujours d'accomplir sa tâche beaucoup plus aisément, sans brusquerie, ni précipitation, en s'inspirant au fur et à mesure des progrès constants de la science.

La loi suisse exclut de la surveillance spéciale qu'elle organise les établissements d'assurances créés par les cantons et les communes (vie, incendie, chômage) et, en outre, les petites caisses de secours mutuels (vie, accidents, maladie, bétail) dont le champ d'activité est « localement restreint." Cette exception a été étendue par l'autorité de surveillance aux caisses d'assurances contre les accidents créées par les patrons d'une même industrie, pour leur propre usage. Ces exemptions se comprennent. Les établissements d'assurances qui sont des institutions des cantons sont affranchis de la surveillance fédérale par l'article même de la Constitution. Quant aux petites caisses locales et professionnelles, on les a laissées de côté d'abord pour des raisons d'opportunité, pour ne pas compromettre l'adoption, par le peuple, de la loi de surveillance; puis parce que le mode de surveillance érigé dans la loi ne convenait pas à leur organisation. Ce n'est pas que l'on ait renoncé pour toujours à toute surveillance à l'égard de ces dernières. Chez nous, comme dans beaucoup d'autres pays, ces petites caisses mutuelles, notamment les caisses d'assurance sur la vie, ont grand besoin d'une surveillance officielle qui vienne mettre de l'ordre dans leurs affaires. La population qui recourt à ces petites caisses est assez intéressante pour que les gou-

vernements vouent toute leur sollicitude à la bonne marche de ces caisses.

En attendant le moment propice pour aborder cette autre tâche, le législateur suisse s'est donc borné à organiser le contrôle des institutions privées qui sont ouvertes à toute la population indistinctement. Et voici plus de 17 ans que sa loi est exécutée.

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Disons une fois pour toutes que la loi suisse ne fait absolument aucune distinction entre sociétés suisses et *sociétés étrangères,* quant à l'exécution de la surveillance, si ce n'est qu'elle pose aux sociétés étrangères la condition bien naturelle de nommer en Suisse un mandataire général qui les représente dans le pays, et d'élire un domicile juridique principal en Suisse, avec obligation pour elles de reconnaître la juridiction des tribunaux suisses. En pratique également, l'autorité fédérale de surveillance, suivant respectueusement l'esprit de la loi, n'a fait jusqu'ici aucune espèce de différence de traitement entre sociétés suisses et sociétés étrangères. Cette attitude nous a été dictée d'abord par des raisons d'opportunité — pour éviter des représailles possibles envers nos sociétés suisses qui travaillent dans beaucoup de pays du monde — puis par la forme même de notre contrôle qui cherche et trouve les garanties nécessaires et suffisantes dans la surveillance active et permanente, puis par nos idées bien arrêtées concernant l'extension internationale de l'assurance, et enfin par des scrupules au sujet de la légalité d'une disparité de traitement à l'égard des États avec lesquels la Suisse a conclu des traités d'établissement statuant l'assimilation complète des ressortissants respectifs en ce qui concerne l'exercice d'industries de toute espèce. — Nos expériences parlent toutes en faveur du principe de l'égalité du traitement, et si nous devons rompre avec ce système pour suivre les traces des États qui, par leurs lois récentes et projetées, nous y obligent, nous ne le ferons qu'avec regret, déplorant qu'une entente entre États voisins ne soit pas intervenue avant de statuer des dispositions nouvelles vraisemblablement grosses de conséquences pour l'assurance, pour les sociétés d'assurances, et pour les relations internationales.

* * *

Aux articles 2 à 7, la loi érige en principe fondamental *l'autorisation préalable* des entreprises qui désirent faire des opérations d'assurance en Suisse, puis le *contrôle permanent* des sociétés une fois autorisées. À l'article 12, elle donne au gouvernement le pouvoir de s'adjoindre le personnel nécessaire en vue de l'exécution de la loi, et au premier alinéa de ce même article, elle ordonne au Conseil fédéral, soit à son bureau spécial, le bureau fédéral des assurances, de *publier* chaque année *un rapport détaillé* sur la situation des entreprises d'assurances soumises à sa surveillance.

Le législateur suisse organise donc aussi dans une certaine mesure la *publicité.*

Pourquoi ne s'est-on pas borné à la publicité réglementée par l'autorité législative, en faisant abstraction d'une surveillance effective?

Le Conseil fédéral, dans le message par lequel il soumet son projet de loi de surveillance aux autorités législatives, dit lui-même que « la publicité et la critique qu'elle provoque contribuent grandement à éclairer et à garantir le public.» Mais il ajoute immédiatement après que cette publicité ne suffit pas, car il est impossible, dit-il, qu'en dehors des spécialistes on puisse se rendre compte dans le public si les bases de calcul du passif sont correctes, si les réserves calculées sur ces bases

sont intactes, si l'actif qui les représente a bien la valeur qu'on lui attribue dans les publications, si même les bases du calcul indiquées sont bien celles sur lesquelles on opère.

Voilà des raisons qui sont péremptoires. Je conclus en disant que la publicité, *pour autant qu'elle doit donner au public les moyens de se rendre compte par lui-même de la solvabilité des sociétés d'assurances sur la vie,* n'a en soi, à peu près, aucune valeur. En Suisse, comme peut-être ailleurs aussi, les publications officielles sont lues par une fraction assez faible de la population; elles ne sont comprises, quand il s'agit d'une matière spéciale comme l'assurance sur la vie, que d'un nombre infime de citoyens. Je vais même plus loin, et je prétends que dans beaucoup de cas, plus d'un spécialiste, plus d'un actuaire, hésiterait à engager sa responsabilité en portant un jugement définitif sur la solvabilité d'une société d'assurances qu'il ne connaîtrait que par la publicité officielle, fut-elle même la mieux ordonnée parmi celles que nous connaissons actuellement. Comment veut-on que, dans ces conditions, la publicité pure et simple ait les effets que l'on en attend? La publicité gagne de l'importance par la critique qu'elle provoque. J'en conviens. Mais cette critique est loin de suffire. En effet, si la critique n'est pas garantie par une institution officielle, *elle peut faire défaut.* Est-il besoin de citer, à l'appui de ceci, l'exemple d'une grande nation européenne où, par suite d'une entente peut-être tacite entre les spécialistes, la critique des sociétés indigènes est près d'être nulle, malgré une publicité officielle fort bien organisée depuis nombre d'années, et où l'on vient de voir coup sur coup deux déconfitures (après une 3e déjà ancienne) qu'une critique active, à défaut d'une surveillance officielle, eût pu atténuer!

Et puis à quel moment la critique, j'entends la critique consciencieuse, peut-elle s'exercer, en supposant toujours que le spécialiste n'a à sa disposition que les renseignements incomplets qu'il puise dans les publications officielles? À un moment où le mal saute aux yeux, c'est-à-dire lorsque, pour nombre de victimes, *il est trop tard.* Voici, par exemple, une société régulièrement constituée, qui a été bonne, mais qui commence à péricliter et qui remplit néanmoins les états destinés à la publicité qui lui sont imposés par la loi. S'il n'existe pas d'autorité de surveillance qui ait pour devoir d'étudier méticuleusement la situation de chaque société et qui puisse, au besoin, requérir d'autres renseignements reconnus nécessaires, qui donc s'apercevra de ces embarras naissants? Cette société continue à faire de nouvelles acquisitions; le mal augmente; des experts le remarquent enfin et le révèlent. Demandez alors à tous les assurés de cette société quel avantage ils ont retiré de la publicité et de la critique: Il est trop tard. Une autorité chargée de la surveillance eût évité le mal pour tous ceux qui sont entrés depuis le moment où les embarras ont commencé, et elle l'aurait atténué pour les personnes déjà assurées.

La publicité doublée de la critique, mais sans surveillance active, peut donc bien empêcher de plus grands maux en ralentissant le recrutement d'une société en mal de déficits *notoires,* mais elle est incapable de faire apparaître *en temps opportun* une situation qui commence à être embarrassée.

En d'autres termes, la critique est impuissante à faire cesser les opérations d'une société. Elle ne fait qu'attirer l'attention de l'autorité gouvernementale, qui, elle, si elle intervient alors, doit d'abord *chercher* les experts impartiaux et faire procéder à un examen sérieux de la situation avant de prendre toute mesure répressive.

Et ici, je ne parle que de la critique loyale, véridique, non pas de la critique intéressée que se font des agents de sociétés d'assurances moins soucieux de rechercher la vérité que de se procurer, par des moyens plus ou moins délicats, des avantages temporaires aux dépens de leurs concurrents. Cette critique-ci, arme à deux tranchants, qui nuit finalement aussi bien à son auteur qu'à celui qui en est l'objet, est une plaie de l'assurance toute entière et ne saurait concourir en rien à la solvabilité des sociétés ou à éclairer le public.

Bien que je sache apprécier la haute valeur des travaux scientifiques publiés, par exemple, par l'Institut des Actuaires américains, bien que je sois obligé de reconnaître qu'une association scientifique peut, déjà par ses travaux et par les discussions qui en résultent entre gens du métier, exercer une influence salutaire sur le développement de l'assurance sur la vie, je prétends avec non moins de conviction qu'une critique impartiale *officiellement instituée* et faite *ab ovo* par des spécialistes sur le vu de tous les éléments nécessaires pour former le jugement, est bien préférable aux enseignements éventuels, fortuits et peut-être sujets à caution d'une association privée.

Quand on a vu quelle peine le bureau fédéral des assurances a eue au début et a encore parfois actuellement, malgré des compétences les plus étendues, pour se procurer auprès des sociétés d'assurances sur la vie les éléments de contrôle les plus indispensables (mode de calcul des réserves mathématiques et des corrections relatives à l'échéance des primes, en général ou pour certaines catégories d'assurances, etc.), on ne peut que répéter ce que M. le Dr. Kummer écrit dans le rapport du bureau fédéral des assurances sur l'exercice de 1889:

« La publicité restera un vain mot aussi longtemps que la loi qui la prescrit en faveur du citoyen ne donnera pas, au moins, en même temps, à l'autorité chargée d'en surveiller l'exécution, les moyens de se procurer des renseignements *suffisants* sur l'organisation et les opérations des sociétés d'assurances. Et si l'on veut que l'autorité puisse arriver à ses fins, il faut que l'obligation, pour les sociétés, de fournir les renseignements demandés soit posée comme condition d'autorisation pour opérer dans le pays.»

Mais alors, dira-t-on peut-être, pourquoi la Suisse a-t-elle organisé aussi la publicité? Quiconque a parcouru une fois un des rapports annuels du bureau fédéral des assurances, peut répondre à cette question. — L'autorité fédérale de surveillance a pour mandat d'examiner, *en lieu et place des assurés et du public désireux de s'assurer,* la situation des sociétés, de se convaincre de leur solvabilité, et, au besoin, de prendre les mesures qu'exige l'intérêt général. Or il n'est que logique qu'elle rende compte à son mandant, et en même temps au public, pour la sauvegarde duquel elle est instituée, de l'exécution de son mandat et des principes qu'elle a observés dans la surveillance. Elle présente au public, dans ses rapports, les sociétés qu'elle juge recommandables au point de vue de la solvabilité. Les personnes désireuses de s'assurer peuvent y choisir, parmi des sociétés considérées comme solvables, celle qui répond le mieux à leurs goûts particuliers sur certains points où elles peuvent être laissées juges. (Société par actions ou Société mutuelle, suisse ou étrangère, constitution de l'actif, conditions générales d'assurance, bénéfices, modes de participation, etc.) Aux assurés elle y donne de précieux renseignements sur la marche de la société à laquelle ils confient leur argent.

Les rapports du bureau fédéral des assurances doivent avoir aussi un but éducateur. Ils doivent instruire le public pour le mettre en

mesure de soigner lui-même ses propres intérêts dans toutes les questions autres que les questions purement techniques. Pour cela, les renseignements qu'il donne doivent être présentés sous une forme claire, populaire, et, en même temps, aussi uniforme que possible afin de faciliter des comparaisons. L'autorité chargée de les rédiger ne peut donc pas se contenter des comptes rendus plus ou moins incomplets que publient les sociétés. Elle est obligée d'exiger de chacune de ces dernières la présentation d'un rapport suivant un *formulaire spécial* prescrit. Et elle puise dans ces questionnaires remplis, et publie, sous forme d'aperçus d'ensemble, de tableaux individuels ou comparatifs, et avec les explications nécessaires, tout ce qui peut intéresser le public ou lui faciliter ses recherches. Ainsi comprise, la publication officielle devient une partie intégrante de la surveillance et remplit une mission spéciale dont l'autorité de surveillance ne peut pas être chargée.

Ici également, les expériences faites par le bureau fédéral des assurances lui ont surabondamment démontré combien il était nécessaire d'avoir, à côté des dispositions légales réglant la publicité, une autorité ferme, suffisamment armée, et experte, pour arriver à obtenir les renseignements requis, puis pour les examiner préalablement, et les soumettre ensuite, *sous leur vrai jour,* au public.

Citons, en terminant ce point, le passage suivant du rapport déjà mentionné ci-dessus:

« Après avoir fait l'expérience que le but de la publicité n'est pas garanti *sans autorité de surveillance et sans surveillance,* nous pouvons dire que la publicité et la surveillance ne sont pas deux choses qui s'excluent réciproquement, mais bien deux garanties qui se complètent, nécessaires l'une à l'autre, offertes au public qui s'assure.»

* * *

Après ce qui vient d'être dit au sujet du rôle de la publicité, je puis être bref en ce qui concerne la nécessité d'une autorisation *spéciale* précédée d'un examen minutieux de l'organisation, de l'administration et du fonctionnement des sociétés d'assurances sur la vie.

En quoi consiste cette *autorisation préalable?*

En première ligne, les sociétés doivent justifier qu'elles sont constituées conformément aux règles de droit commun en vigueur dans leur pays, qu'elles peuvent, à leur siège social, et à titre de personne civile, acquérir des droits et contracter des obligations en leur propre nom. Mais ce n'est pas tout. Elles doivent fournir au Conseil fédéral une série de documents et de renseignements énumérés à l'article 2 de la loi, en vue de le renseigner sur leurs opérations. Et si le Conseil fédéral, à l'aide de ces documents, et, au besoin, d'autres renseignements qu'il a le droit d'exiger (art. 3), acquiert la conviction que la société qui sollicite la concession fédérale offre les garanties de solvabilité qu'il estime nécessaires et suffisantes, il autorise cette société à faire des assurances en Suisse. La concession ainsi accordée n'est pas, de par la loi, limitée de durée, et elle peut être retirée en tout temps.

Ce système de concession ensuite d'un sérieux contrôle préalable constitue la pierre angulaire de l'édifice de la surveillance suisse.

On pourra déjà juger de la valeur de ce système quand on saura qu'à l'époque de la mise en vigueur de la loi fédérale de surveillance, 163 sociétés de toutes branches d'assurances (67 sociétés d'assurances sur la vie) avaient été signalées comme opérant dans les différents cantons suisses, et que sur ce nombre *66* (26) renoncèrent à demander la concession générale ordonnée par la loi, sans parler de celles qui

retirèrent leur demande au cours des premières négociations. Et il ne faudrait pas croire que ces 66 sociétés se fussent toutes abstenues parce que, peut-être, leur organisation ne leur permettait pas de se plier facilement aux exigences de l'autorité de surveillance, ou parce qu'elles ne voulaient pas se soumettre au nouveau régime de surveillance. Il est bien plutôt probable que beaucoup ont craint l'œil inquisiteur de l'État. Ainsi que le directeur du bureau fédéral des assurances le dit dans son rapport pour 1898, « la majorité de ces 66 sociétés, en grande partie des sociétés vie, accidents et incendie, n'existe plus aujourd'hui, soit que l'autorisation d'opérer leur ait été retirée dans leur pays d'origine, soit qu'elles aient liquidé ou fusionné avec d'autres sociétés de même acabit.»

On voit par là que le fait de l'institution d'un sévère contrôle préalable a eu en Suisse les résultats les plus heureux. Il a suffi, à lui seul, pour éloigner du territoire de la Confédération suisse, au début de la surveillance officielle, les sociétés qui avaient de bonnes raisons de craindre les investigations d'une autorité qui prenait son rôle au sérieux. La simple mise en vigueur de la loi de surveillance a opéré, presque sans intervention de l'autorité, un premier criblage et a séparé quantité de mauvais grain. Et dès lors, il ne se passe pas d'année sans que le même fait ne se reproduise. L'envoi de la loi suisse et du questionnaire officiel à une société qui s'enquiert des formalités à remplir pour exercer son industrie en Suisse suffit, en effet, souvent, pour enlever à cette société toute velléité d'entrer dans le pays. Est-ce à dire que notre loi soit démesurément sévère? Certainement aucun de ceux qui l'ont critiquée ne lui a jamais fait ce reproche. Serait-ce alors que l'autorité de surveillance use, elle, de trop de sévérité dans l'exercice des pouvoirs que lui concède la loi? Pas davantage. Si le législateur suisse a laissé de grandes compétences à l'autorité chargée d'exécuter la loi, c'est parce qu'il en avait reconnu la nécessité, c'est pour permettre à l'autorité de contrôle de régler ses exigences sur le besoin et sur les données d'une science qui est en plein développement, et uniquement pour cela. Et c'est bien ainsi que l'autorité exécutive a compris et comprend sa mission. Non, la cause de la prudente reculade opérée par beaucoup de sociétés doit être cherchée dans ces sociétés elles-mêmes. Les sociétés qui ne craignent pas le grand jour, ne redoutent nullement l'examen auquel elles sont soumises. Tout au contraire. Bien qu'elles soient parfois obligées de modifier quelque peu la forme de leurs statistiques et de leur comptabilité, elles s'y prêtent volontiers, sachant bien que la concession fédérale leur sera une recommandation.

On le voit, et il n'est pas nécessaire d'insister, le système de la concession basée sur un examen préalable des garanties d'une société a une valeur intrinsèque que personne ne peut lui contester; il est indispensable à la surveillance officielle comme la chaudière à la machine à vapeur.

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J'ai déjà dit plus haut que la loi suisse est muette au sujet de la *durée de la concession*. En revanche, elle institue, aux articles 5 et 6, le *contrôle ininterrompu* des sociétés une fois concessionnées; et, à l'article 9, elle donne au Conseil fédéral le droit de prendre en tout temps les décisions qui lui paraissent nécessaires dans l'intérêt général, entre autres celui de retirer la concession lorsque la situation d'une entreprise n'offre plus les garanties reconnues nécessaires et suffisantes, et que l'entreprise n'apporte pas, dans un délai fixé, les modifications réclamées par le Conseil fédéral.

Dans ces conditions, il semble, en effet, superflu de *limiter la durée de la concession.*

En pratique toutefois, l'autorité de surveillance, usant d'un droit qui lui est implicitement accordé, a fixé jusqu'ici la durée de la concession à six ans. Les motifs qui l'y ont engagé sont d'ordre purement interne. Ils sont exposés tout au long dans l'introduction des rapports du bureau fédéral des assurances. Ce sont, en essence, les suivants.

Au moment où la concession d'une société expire et est remise en question, l'autorité de surveillance se sent plus spécialement obligée de procéder à un nouvel examen approfondi pour se rendre compte si la situation de cette société a changé, le cas échéant aussi si celle-ci satisfait encore aux conditions qui lui ont été posées. « Le retrait de la concession vis-à-vis d'une compagnie isolée n'est qu'une mesure exceptionnelle à laquelle on a recours seulement lorsque tout à coup des faits exceptionnels se produisent qui motivent cette intervention; et, sans notre système, il ne serait rien moins que sûr que cette intervention ne serait pas différée de jour en jour et l'enquête de l'État entravée par une résistance passive de la compagnie. Au contraire, le fait de l'expiration des concessions impose aux autorités le devoir de procéder à une enquête, et aux compagnies, l'obligation de produire les justifications qui leur sont demandées, de sorte qu'ainsi l'enquête *doit* avoir lieu.

« D'autre part, ce système d'autorisations qui expirent au même moment pour toutes les compagnies présente cet avantage que, lors d'une revision générale des concessions, on peut procéder à des réformes générales qu'il serait impossible d'imposer successivement à chacune des compagnies. En effet, les compagnies prises isolément nous objecteraient qu'il leur est impossible de se soumettre à des conditions auxquelles les compagnies rivales ne sont pas astreintes en même temps.» (Rapport du bureau fédéral des assurances pour 1891, page III.)

A l'expiration des deux premières périodes sexannuelles de concession, en 1892 et en 1898, le bureau fédéral des assurances a précisément pu faire l'expérience qu'à moins de recourir au moyen extrême, disproportionné, du retrait de l'autorisation, il lui eût été à peu près impossible d'obtenir des sociétés-vie qu'elles abandonnassent des bases techniques défectueuses pour en adopter d'autres plus conformes à la réalité et à la science, ou qu'elles procédassent à une revision générale de leurs prospectus réclames (table de mortalité, taux d'intérêt pour le calcul des réserves, taux probable de participation aux bénéfices).

Cette périodicité des concessions n'a d'ailleurs rien de gênant pour les sociétés qui n'ont pas besoin de l'éperon. Bon nombre de sociétés d'assurances sur la vie travaillant actuellement en Suisse se sont probablement à peine aperçues, soit en 1892, soit en 1898, que le bureau fédéral se livrait à un nouvel examen un peu plus spécial qu'entre temps.

En résumé, le système de concessions temporaires expirant toutes à une même date fixe se recommande, par ses avantages pratiques, à toute autorité démocratique de surveillance.

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Il serait faux de croire qu'après l'autorisation première, l'autorité fédérale n'exerce une surveillance effective qu'au renouvellement des concessions. Dans l'intervalle des 6 ans de la concession, le bureau suit attentivement la situation financière des sociétés d'assurances sur la vie, qu'il surveille, et, au besoin, il interviendrait sans attendre la fin de la période courante de concession. La surveillance est, de fait, et suivant l'esprit de la loi, *ininterrompue.*

Et ce n'est que logique. La solvabilité d'une société d'assurances sur la vie dépend d'une foule de circonstances qui se modifient avec le temps. Non seulement les bases techniques fondamentales — les tables de mortalité et le taux d'intérêt — considérées une fois comme admissibles, peuvent ne plus répondre au besoin et aux progrès de la science quelques années plus tard, mais encore une société active se développe constamment; elle introduit de nouvelles combinaisons; elle réforme ses conditions d'assurance; elle étend sa garantie à des risques précédemment exclus, encore peu connus, peut-être même à peu près incommensurables; en outre, elle doit chaque année faire de nouveaux placements; la valeur de l'actif est sujette à des fluctuations dues à des causes dont elle n'est pas maîtresse et auxquelles elle ne peut pas toujours se soustraire à temps. Qui oserait prétendre que la solvabilité d'une société d'assurances sur la vie ne dépend pas deces changements qui s'opèrent pour ainsi dire à chaque instant? Et croirait-on peut-être que les innovations se font toujours au mieux des intérêts des sociétés ou sans préjudicier à la solvabilité de celles-ci? Non pas; si j'en juge d'après les expériences du bureau fédéral des assurances, il arrive que, la concurrence aidant, une société veut parfois imiter une riche voisine, alors que sa capacité financière ne lui permet pas de se lancer dans les mêmes aventures. L'actuaire de cette société téméraire s'est-il fait des illusions sur la puissance de celle-ci? J'ai tout lieu de croire qu'il n'en est rien, mais que plutôt l'actuaire n'a pas eu le dernier mot. Ceci soit dit, non seulement pour excuser l'actuaire, mais aussi pour donner à entendre d'où peut venir le danger. L'autorité de surveillance qui a autorisé une société sur le vu des garanties offertes par celle-ci et qui, par la concession qu'elle lui octroie, la recommande au public comme étant une société solvable, doit évidemment se rendre compte, à chaque changement qui survient, si elle, autorité, peut continuer son patronage dans les nouvelles conditions. Il résulte de là la nécessité pour l'État surveillant de se prononcer, par sa sanction ou son véto, sur toute circonstance nouvelle qui, de près ou de loin, intéresse la solvabilité des sociétés.

Evidemment, le rôle de la surveillance officielle devient délicat toutes les fois qu'il s'agit d'un nouvel essai dans un terrain encore peu défriché. Elle doit bien se garder, à mon sens, d'entraver aussi peu que ce soit les efforts tendant à étendre l'assurance. Elle doit, au contraire, les favoriser autant qu'il est en son pouvoir et dans la mesure où, défenseur des intérêts publics, elle peut reconnaître, si cela lui est possible, que l'essai projeté ne nuira pas à la solvabilité de la société d'assurances. D'autre part, elle doit aussi veiller à ce que les garanties offertes aux personnes déjà assurées n'en soient pas amoindries; et, pour cela, elle étudiera toute nouvelle combinaison, toute nouvelle méthode adoptée par la société, au point de vue de *l'équité*. N'a-t-elle, pour juger la question, aucun point de repère si ce n'est l'intuition que l'essai projeté ne comporte ni danger ni inéquité, elle doit laisser faire, quitte à se réserver de former plus tard son jugement suivant les expériences.

Mais dans tous les cas non seulement elle évitera de paralyser la libre initiative, mais plutôt elle secondera les efforts des sociétés, elle joindra les connaissances qu'elle peut avoir acquises dans l'exercice de ses fonctions à celles des actuaires des sociétés, et obtiendra ainsi que l'essai se fasse dans de bonnes conditions tant pour les assurés que pour les sociétés elles-mêmes. C'est ainsi, du reste, que l'autorité fédérale a toujours compris son rôle dans certaines questions nouvelles ou non

encore entièrement élucidées. Le législateur suisse, et, avec lui, l'autorité exécutive, se sont soigneusement abstenus de faire violence à la science en imposant autoritairement une manière de voir qui ne pouvait pas être définitive (assurance de risque de guerre, coassurance de l'invalidité, choix de la table de mortalité pour certaines catégories d'assurance, etc.).

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La loi fédérale dit que les entreprises d'assurances doivent fournir au Conseil fédéral un cautionnement dont il fixe le montant.

Le premier projet de loi présenté par le Conseil fédéral n'exigeait pas de cautionnement. Non pas toutefois que la question n'ait pas été étudiée, surtout à l'endroit des compagnies étrangères; mais le Conseil fédéral ne vit pas la nécessité d'un cautionnement avec le mode de surveillance adopté par lui. Pour qu'un cautionnement ait une signification, se dit-il, il faut qu'il s'élève au montant des réserves, mais alors il n'est pas équitable, attendu qu'il crée un privilège au profit d'une classe d'assurés, entraîne ainsi une disparité de traitement entre assurés d'une même société et fait naître un gros danger pour ceux qui ne jouissent pas de cette garantie. Le Conseil fédéral ne voulut aucunement d'une mesure qui avait des conséquences aussi injustes, bien que favorables aux assurés suisses. D'ailleurs, l'exigence d'un cautionnement dans cette proportion entraîne l'obligation de fixer légalement le mode et les bases de calcul des réserves pour les assurances faites en Suisse, et la nature du placement de ces réserves, ce dont le Conseil fédéral ne voulait pas non plus.

La commission du Conseil des États, qui remania le projet du Conseil fédéral partagea entièrement ces idées-là du Conseil fédéral, et ... introduisit néanmoins dans la loi l'alinéa que je viens de citer.

Mais il s'agit d'un cautionnement bien différent de celui dont le Conseil fédéral ne voulait pas.

Le cautionnement dont parle la loi doit spécialement servir de gage à l'autorité exécutive pour les engagements que les sociétés ont à remplir vis-à-vis de l'État qui les surveille; en outre, il doit offrir une garantie, le cas échéant, pour l'exécution d'un jugement. C'est une garantie non plus pour les assurés seulement, mais surtout pour l'État.

Avec cette destination, un cautionnement a, en effet, grandement sa raison d'être.

Jusqu'ici, le Conseil fédéral en a fixé le montant à fr. 100,000 pour toutes les sociétés d'assurances sur la vie opérant en Suisse. Ce chiffre est très modique, peut-être trop. Quoiqu'il en soit, il a rendu déjà, tel quel, les services qu'on en attendait, et, en plus, d'autres auxquels on avait moins pensé. Il a, en effet, servi d'épouvantail vis-à-vis de certaines fondations, de valeur non douteuse, qui n'auraient pas pu réunir les fr. 100,000 nécessaires. Seulement durant l'hiver dernier, deux demandes de concession adressées au bureau fédéral des assurances, l'une d'une « société d'assurances mutuelles en cas de vie avec garantie en cas de décès,» l'autre d'une « société d'assurances dotales pour les jeunes filles » (cette dernière non encore définitivement constituée) ont échoué sur l'écueil d'un cautionnement de fr. 100,000 à déposer. Or, dans le second cas, il s'agissait d'un homme en quête d'une place de directeur bien rétribuée, qui ne connaissait pas l'A B C de l'assurance, et pour lequel l'assurance était un moyen d'arriver à ses fins. Dans l'autre, l'extension de la société avait également pour but d'arrondir encore des revenus déjà fort honnêtes constitués par des prélèvements fixes sur les

versements d'associations tontinières gérées, *sans aucune garantie quelconque,* par la société.

J'attire tout spécialement l'attention sur le fait que le chiffre du cautionnement n'est déterminé ni dans la loi, ni dans le règlement d'exécution concernant les cautionnements; de sorte que le Conseil fédéral peut le fixer, dans chaque cas, suivant les circonstances spéciales. Il possède là une arme qui n'est pas à dédaigner, attendu qu'elle peut à elle seule interdire absolument l'accès de la Suisse à ces sociétés plus ou moins louches qui se décorent du nom de sociétés *d'assurances mutuelles* et qui ne font que gérer, sans garantie comme d'ailleurs sans désintéressement, et encore dans les conditions les moins favorables, des tontines en cas de vie, parfois aussi, accessoirement, des tontines au décès.

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Dans un précédent chapitre, j'ai dit que le Conseil fédéral examine si les sociétés offrent les garanties de solvabilité qu'il estime nécessaires et suffisantes.

Serait-ce donc que ces conditions de solvabilité ne sont pas circonscrites dans la loi?

En effet, la loi suisse ne définit pas la solvabilité; elle n'indique aucune des conditions à remplir par une société pour avoir droit à un certificat de solvabilité; elle renonce à être un traité technique. C'est l'autorité exécutive, le Conseil fédéral qui est chargé de poser, dans chaque cas, les conditions auxquelles une société d'assurances sur la vie doit répondre pour être solvable.

Et même il n'est pas possible de recourir à une autre autorité sur les décisions du Conseil fédéral. Le législateur s'est dit, avec infiniment de raison, qu'il était inutile de créer, à côté du bureau des assurances, un second bureau des assurances ayant pour mission, en cas de recours, de procéder aux mêmes études que le premier, et de trancher les mêmes questions d'ordre technique avec la même liberté que celui-ci. Pourquoi, en effet, cette instance de recours serait-elle plus infaillible que le bureau de surveillance? Et si l'on admet une instance de recours, pourquoi s'arrêterait-on en si beau chemin et n'en instituerait-on pas une seconde, peut-être encore une troisième? Les raisons que l'on peut invoquer en faveur d'une instance de recours me semblent plutôt aboutir à cette conclusion, savoir que les décisions doivent être prises, non par une seule personne, mais par un collège de spécialistes afin d'en assurer la justesse et l'impartialité. Or il suffit, pour que cette condition soit remplie, que l'autorité de surveillance soit composée en conséquence. D'autre part, et pour les mêmes raisons, le législateur n'a pas voulu permettre à un tribunal constitué, par exemple, au Tribunal fédéral, de se prononcer dans des questions exigeant des connaissances aussi spéciales. Au reste, une société qui a subi un traitement qu'elle croit injuste peut toujours demander au Conseil fédéral de revenir sur sa décision; et le Conseil fédéral qui ne se croit pas infaillible, examine chaque fois les motifs avancés par la société, et décide à nouveau. Il est déjà arrivé plus d'une fois que le bureau des assurances a ainsi modifié sa proposition et le Conseil fédéral sa décision, reconnaissant ainsi le bien fondé des réclamations de la société et faisant son *mea culpa.*

Cette grande liberté de mouvement laissée par la loi au Conseil fédéral a été vivement critiquée au début. Il nous a suffi toutefois de constater d'où venaient les critiques les plus violentes pour nous rendre compte de la valeur de celles-ci. Quelques sociétés, en effet, furent malmenées par le bureau fédéral des assurances. Ce n'étaient pas, on le devine, les meilleures. C'est ainsi que, par exemple, la Caisse générale

des familles, à Paris, compagnie qui vient d'être déclarée en faillite, il y a une année à peine, ne put trouver grâce devant le bureau fédéral des assurances en 1886 déjà, c'est-à-dire à une époque où l'insuffisance de ses réserves ne pouvait être appréciée que par des spécialistes chargés d'une minutieuse surveillance.

Ces critiques ne vinrent pas seulement des sociétés dont l'amour propre fut blessé par le peu de considération que le bureau fédéral eut pour leurs prétendues garanties. Des publicistes aussi ne se firent pas faute de crier à l'arbitraire et de voir, par avance, dans ce pouvoir discrétionnaire de l'autorité exécutive, l'origine des pires maux. Mais, par contre, je crois qu'aucune de ces critiques prophétiques nous ait été adressée par un actuaire proprement dit. C'est vraisemblablement que les actuaires ont compris, comme on l'a fait en Suisse, qu'à cette époque-là, et dans l'état où était l'assurance sur la vie à ce moment, il était tout simplement *impossible* d'édicter une loi plus complète : les expériences, les matériaux, manquaient. Le plus pressant était d'instituer une autorité munie des compétences légales nécessaires pour exercer la surveillance au mieux de ses connaissances, et chargée de recueillir et d'enregistrer, pour plus tard, les matériaux et les observations. Il n'est pas inutile de relever ici que la Suisse était alors le premier État européen qui introduisait une surveillance effective dans ces proportions.

Le Conseil fédéral, assisté de son « personnel nécessaire,» ainsi que s'exprime la loi, est ainsi le seul surveillant officiel, et en même temps le seul organe responsable de l'exécution de la surveillance. Mais il doit, en revanche, chaque année, rendre compte publiquement de sa gestion, dans le rapport dont j'ai parlé sur la situation des entreprises d'assurances en Suisse.

Les principes suivis dans la surveillance sont exposés dans ces rapports.

Il est clair que l'autorité de surveillance examine en premier lieu les tarifs, le mode de calcul des réserves et le placement des réserves. Puis les capitaux de garantie, capitaux sociaux, réserves pour éventualités, réserves de bénéfices, etc.

Comme je n'ai pas l'intention d'exposer l'exécution pratique de la surveillance dans tous ses détails, je me bornerai à expliquer aussi brièvement que possible la manière d'agir de l'autorité suisse de surveillance dans la question qui l'intéresse avant toute autre, la *constitution des réserves.*

Le Conseil fédéral n'a, pas plus que la loi, fixé de tables de mortalité et de taux d'intérêt comme devant servir de base dans le calcul des réserves des assurances faites en Suisse.

Je crois qu'il ne faut pas chercher trop loin les raisons qui l'ont engagé à agir ainsi.

À l'époque de l'entrée en vigueur de la loi de surveillance en 1885, il eût été bien difficile de dire quelles tables de mortalité il convenait d'employer pour les différentes catégories d'assurances suisses. Nous avions bien quelques tables de mortalité déduites d'observations faites sur la mortalité dans une partie de la population suisse, l'une même, construite après le recensement de 1880, était basée sur des observations faites dans toute la population suisse. Était-il convenable d'adopter cette dernière comme base de calcul des réserves des assurances en cas de décès faites en Suisse? Évidemment pas d'une manière générale.

La table des 23 compagnies allemandes venait de paraître (1883) ; mais bien que l'une de nos sociétés suisses ait également fourni des ma-

tériaux pour sa construction, rien ne prouvait qu'elle fût applicable aux assurances en cas de décès faites en Suisse.

Il aurait été également très arbitraire d'adopter d'autres tables en usage à l'étranger telles que la table des actuaires anglais, la table HM. Et la même question se posait aussi pour les assurances en cas de vie, les assurances de rentes, les assurances populaires.

On n'eut donc pas à s'occuper de la question de savoir si peut-être d'autres raisons s'opposaient à l'introduction, dans la loi ou dans un règlement, d'une disposition dictant aux sociétés les tables de mortalité à employer pour leurs assurances suisses. Si cette question se fût posée, il est vraisemblable que, déjà alors, on l'eut tranchée dans ce sens qu'il faut bien se garder d'une disposition semblable, attendu qu'elle est contraire au principe de l'unité des sociétés pour toute société qui étend ses opérations à plusieurs pays, et qu'en dernière analyse elle oblige les sociétés à se confiner dans leur pays d'origine; or pour celui qui voit dans l'internationalité des opérations d'assurances une sérieuse garantie de solvabilité de plus, il évitera tout ce qui peut nuire à cette extension internationale de l'assurance sur la vie.

Il est évident que si les sociétés faisant des assurances sur la vie en Suisse avaient toutes été des sociétés suisses, et si leur portefeuille d'assurances avait été composé exclusivement ou en majeure partie d'assurances suisses, la question se serait présentée différement; l'on aurait possédé, ou l'on serait arrivé avec le temps à posséder des tables spéciales de mortalité applicables à ces assurances; et l'adoption de ces tables par la loi, par un règlement ou simplement par disposition administrative n'eût plus été peut-être qu'une question de forme. Mais il n'en a jamais été ainsi. En 1886, lors de la mise en vigueur de la loi de surveillance, sur 30 sociétés d'assurances-vie, qui obtinrent la concession fédérale, 7 seulement étaient suisses, les autres étaient 7 sociétés allemandes, 11 françaises, 2 anglaises et 3 américaines. Actuellement, les 27 sociétés concessionnées sont 6 suisses,*) 8 allemandes, 6 françaises, 5 anglaises et 2 américaines. Une disposition légale ordonnant l'adoption de certaines bases techniques déterminées pour le calcul des réserves des contrats suisses, aurait eu les conséquences les plus regrettables pour le plus grand nombre des sociétés qui travaillaient en Suisse. Pour ne citer que les compagnies françaises qui, toutes, à l'exception d'une seule, faisaient usage de la table de Duvillard pour leurs assurances en cas de décès, cette exigence eût été excessive pour beaucoup de ces compagnies; car on avait pu se rendre compte que, pour celles-ci, bien que leurs réserves mathématiques fussent notoirement trop faibles dans plusieurs catégories d'assurances, elles offraient cependant des garanties bien suffisantes grâce à d'importantes plus-values sur différents postes de leur actif. À quoi servait de demander un changement de comptabilité qui aurait révolutionné les habitudes des compagnies françaises sans augmenter d'un iota leurs garanties? Là où ces plus-values n'existaient pas, il ne servait pas à grand'chose d'exiger un relèvement des réserves pour les assurances suisses, car la garantie des réserves serait demeurée insuffisante pour le reste, pour la partie la plus importante du portefeuille total des assurances, et les compagnies auraient bien su faire supporter par leurs assurés suisses la charge qu'on leur aurait imposée en les obligeant à constituer des réserves plus élevées pour les assurés suisses. L'avantage auquel on aurait visé pour ceux-ci aurait donc été à peu près nul, et les

*) Non plus 7, par suite de la fusion de deux petites sociétés en une seule.

garanties n'en auraient pas été meilleures pour tout cela. Lorsque la situation ne paraissait pas désespérée et ne justifiait pas un refus catégorique de la concession, il était bien plus efficace de demander un relèvement *général* des garanties (passage successif à des réserves plus fortes pour tout le portefeuille d'assurances, suppression momentanée de toute distribution de dividendes aux actions, réduction, dans la mesure du possible, des bénéfices aux assurés, réduction des frais, au besoin nouveau versement sur les actions et majoration des tarifs) et de n'accorder la concession que provisoirement et à condition pour les compagnies en question de tenir scrupuleusement les promesses de réforme qu'elles avaient dû faire.

Mais ici encore, une disposition légale inflexible aurait eu de fâcheux effets, attendu que beaucoup de sociétés auraient été incapables de s'y conformer sur le champ et qu'elles auraient dû se retirer de notre territoire, au détriment, j'ose le dire, de l'assurance sur la vie en Suisse.

Nonobstant, il n'en restait pas moins désirable que les compagnies françaises abandonnassent au plus tôt leur défectueuse table de Duvillard, et le bureau fédéral le leur donna à comprendre.

Ce que je dis ici des compagnies françaises s'applique, d'ailleurs, à nombre d'autres sociétés qui passèrent par les mailles, quelque peu larges, du premier crible du bureau fédéral des assurances.

C'est donc *l'ensemble* des garanties que le bureau fédéral a cherché à apprécier.

Mais même pour cela, il fallait bien arriver à évaluer aussi exactement que possible le passif, c'est-à-dire les réserves des sociétés, et choisir pour cette évaluation la ou les tables de mortalité à employer. C'est bien ce que fit le bureau. Mais ici la question était de nouveau assez délicate. Quelle était alors, et même aujourd'hui encore, quelle est la meilleure table de mortalité à employer? Si une société, comme la Gotha ou la Leipzig, est assez grande pour construire une table de mortalité sur ses propres expériences; si même ses expériences annuelles sont suffisamment nombreuses pour qu'elle puisse se borner aux observations d'un passé relativement court, je crois que la table de mortalité par âges à l'entrée, construite dans ces conditions, est la meilleure que cette société puisse admettre pour les prochaines années à venir (je pense ici surtout aux assurances en cas de décès, sans vouloir d'ailleurs me prononcer sur l'opportunité de tables différentes pour les différentes catégories d'assurances en cas de décès). Mais il n'est pas certain que cette même table convienne en tous points à une autre société qui se recrute de préférence dans d'autres classes de la population, qui fait beaucoup d'autres combinaisons d'assurance, et où l'examen médical est plus ou moins sévère qu'à la première. De même, il n'est pas sûr qu'une table de mortalité déduite des expériences d'un groupe de sociétés (HM, M & W, AF, etc.) convienne parfaitement à chacune de ces sociétés prises individuellement. Mais l'autorité suisse de surveillance n'eut pas à entrer dans ces considérations en 1886, parce que le nombre de tables exactement construites entre lesquelles il pouvait choisir était excessivement restreint: elle dut se contenter, faute de mieux, de la table de 23 compagnies allemandes M & W. I pour les sociétés allemandes et les 4 plus grandes sociétés suisses, de la table suisse de mortalité générale 1876/81 pour les 3 petites sociétés suisses, de la table HM pour les sociétés anglaises et françaises et de la table américaine pour les sociétés américaines.

Je passe sous silence les tables admises pour les assurances en cas de vie et pour certaines classes spéciales d'assurances.

Quant au taux d'intérêt, le bureau fédéral admit 4%. Toutes les sociétés qui furent concessionnées réalisaient un taux moyen assez notablement supérieur à 4% sur les placements; les compagnies américaines même plus de 5%. Mais le taux général de l'intérêt des capitaux était en baisse continuelle, et il était à prévoir que le taux de 4% ne pourrait pas être maintenu longtemps; aussi est-ce à titre seulement provisoire que le bureau adopta ce taux pour ses calculs.

En 1892, au commencement de la deuxième période sexannuelle de concession (ou plus exactement en 1894, pour y comprendre quelques retardataires), les choses étaient déjà modifiées assez considérablement. Dans l'intervalle, les sociétés, averties à temps que le bureau fédéral des assurances serait plus exigeant pour le renouvellement de la concession, avaient à peu près toutes revisé leurs bases de calcul, ou... avaient préféré renoncer à leur concession en Suisse. Sur 25 sociétés concessionnées restantes, 21 avaient changé de table de mortalité et de taux d'intérêt pour leurs nouvelles assurances; 1, sa table de mortalité seule; 3 seulement avaient conservé leurs anciennes bases. En particulier, toutes les compagnies françaises restées concessionnées ont adopté les nouvelles tables AF et RF à $3\frac{1}{2}\%$ pour le calcul des tarifs et des réserves de leurs nouveaux contrats. Toutes les autres sociétés qui ont choisi de nouvelles bases se sont arrêtées au choix fait par le bureau pour son contrôle particulier, à l'exception des compagnies américaines qui étaient tenues par la loi de l'État de New-York de calculer leurs réserves d'après la table des actuaires anglais à 4%, base que le bureau pouvait bien considérer aussi comme suffisante, surtout en présence des fonds disponibles de ces compagnies. Sauf cette dernière exception, le nouveau taux d'intérêt de base est partout $3\frac{1}{2}\%$, chez une société même 3% (avec la table M & W. I; d'autres sociétés avaient déjà dès le début ce taux de 3% avec les tables HM et Babbage).

Le Conseil fédéral put être jusqu'à un certain point tranquillisé par ces réformes. Mais il restait cependant encore beaucoup à faire. La baisse du taux général de l'intérêt continuait, et il était à prévoir que les anciennes tables et le taux de 4% ne pourraient plus être maintenus pour les anciens assurances. Heureusement cette baisse se ralentit vers la fin de la 2e période de concession, le taux d'intérêt se releva même en Suisse, si bien qu'après un nouvel examen des garanties de toute nature des sociétés en 1898, le bureau fédéral put abandonner l'idée qu'il avait eue précédemment d'exiger sur toute la ligne une réforme radicale. Vis-à-vis de quelques rares sociétés seulement, où la première réforme n'avait pas suffisamment amélioré la situation, le bureau exigea comme condition de renouvellement de la concession l'engagement qu'elles combleraient progressivement, d'une manière convenue, l'insuffisance des réserves de leurs anciens contrats.

Pour le moment, la situation générale s'améliore progressivement en même temps que les anciens contrats expirent.

Est-ce à dire que tout est pour le mieux dans le meilleur des mondes? Non pas; mais l'autorité suisse de surveillance ne peut pas aller plus vite que le développement de la science actuarielle. Et elle attend que cette science lui fournisse, pour toutes les catégories d'assurances, les bases techniques qui conviennent le mieux. Alors, elle travaillera encore davantage, dans sa sphère spéciale, à l'avènement de cette situation idéale à laquelle elle vise.

Il reste à voir si les réserves et garanties de toute espèce dont les sociétés font état existent effectivement et quelle est la valeur des placements, de l'actif qui les représente.

Le Conseil fédéral, à qui la loi ne donne aucune instruction concernant le mode de placement de l'actif des sociétés d'assurances sur la vie, reconnaît, d'accord avec tout le monde, que les fonds des sociétés d'assurances sur la vie doivent être placés aussi sûrement que des fonds de pupille. Mais il est aussi de l'avis qu'il ne convient pas de lier les mains aux assureurs en les obligeant à choisir certains placements déterminés à l'exclusion de tous autres. Il ne se laisse pas éblouir par la sécurité parfois tant vantée des fonds publics, et préfère la diffusion de risque que donne la multiplicité des placements. Ici encore, il se montre très large de vues, et se borne à mettre son veto contre des placements en actions d'entreprise industrielles.

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On s'est étonné parfois, en Suisse, et ailleurs, de l'attitude passive de l'autorité fédérale de surveillance en ce qui concerne les *conditions générales d'assurance* des sociétés d'assurances sur la vie.

Le Conseil fédéral se borne, en effet, à examiner ces conditions d'assurance à peu près uniquement au point de vue de leur concordance avec les lois suisses. Or, comme il n'existe pas encore de loi suisse sur le contrat d'assurance, il ne s'agit guère que de la loi fédérale de surveillance du 25 juin 1885, qui règle seulement quelques points d'organisation tels que l'attribution de juridiction pour le cas de contestation entre assurés suisses et assureurs et le lieu d'exécution des contrats suisses.

Le premier projet de Code fédéral des obligations contenait un chapitre spécial concernant le contrat d'assurance. On se rendit compte bien vite, toutefois, que cet essai de codification du droit d'assurance, à une époque où les expériences faisaient essentiellement défaut, n'était pas heureux, et on le retrancha du projet de code dans l'idée d'en faire plus tard l'objet d'une loi spéciale. Ce « plus tard » signifiait quand on connaîtrait mieux le sujet. Et l'on pensa arriver à cette connaissance justement par l'exercice de la surveillance officielle.

Le Conseil fédéral fut même expressément chargé d'enregistrer les expériences, de rassembler les matériaux, de préparer l'élaboration d'une loi sur le contrat d'assurance.

Il ne pouvait donc pas empiéter sur le terrain que le législateur se réservait formellement et qu'en attendant, celui-ci abandonnait d'ailleurs expressément à la souveraineté des cantons (art. 64 du Code fédéral des Obligations).

Telle est la raison de l'abstention du Conseil fédéral en cette matière.

La loi en question est actuellement en préparation. La commission d'experts chargée de l'élaboration de la loi, et dont parle M. le Dr. Ceresole dans son rapport au 2. Congrès international d'actuaires, a terminé son travail et soumis au Conseil fédéral un projet définitif. La question avance ainsi avec toute la sage lenteur qui sied à son importance.

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Tels sont, en résumé aussi succinct que possible, les caractères distinctifs du mode de surveillance institué par la petite Suisse. Quoiqu'assez peu partisan de la doctrine qui voit une panacée dans l'intervention de l'État en tout et partout, nous sommes néanmoins convaincu de la nécessité du concours de l'État dans la surveillance des sociétés d'assurances sur la vie, parce que, bien qu'appréciant à sa juste valeur le degré d'instruction du peuple suisse, nous croyons que le citoyen est incapable, en général, de se rendre compte de la valeur véritable d'une

société d'assurances sur la vie. Nous avons le courage de dire qu'en matière d'assurance sur la vie, le gouvernement doit être le tuteur du peuple, qu'il doit se substituer aux citoyens pour veiller lui-même, en premier lieu, à leurs intérêts. Pour sauvegarder ces intérêts, le gouvernement suisse veut que les citoyens ne puissent s'adresser — chez eux — qu'à des sociétés qu'il a reconnues solvables. Pour cela, il a institué le *système de concession ensuite d'un examen minutieux* et *le contrôle ininterrompu* des sociétés concessionnées *par une autorité centrale d'experts.* Son jugement porte à chaque instant sur la situation présente des sociétés et s'appuie sur les données les plus récentes de la science. Il examine au fur et à mesure, au double point de vue de la solvabilité et de l'équité, tous les changements qui s'opèrent dans les sociétés. Au besoin, il peut, quand il le juge bon, vérifier les renseignements qui lui sont donnés, en exigeant la production des livres et pièces justificatives.

D'autre part, malgré les compétences nombreuses qu'elle concède à l'autorité exécutive, la loi suisse de surveillance porte l'empreinte d'un esprit éminemment libéral à l'égard des sociétés d'assurances, et le Conseil fédéral qui l'exécute évite avec un soin jaloux tout ce qui peut nuire au développement des sociétés ou entraver leur libre initiative.

La surveillance suisse ainsi exercée a eu une influence des plus heureuses sur le développement de l'assurance sur la vie en Suisse. En assainissant la situation, elle a fortifié la confiance du public et préparé le terrain pour les bonnes sociétés. Les primes payées en Suisse, pour l'assurance sur la vie, aux sociétés surveillées par la Confédération se montaient à fr. 13,150,000 en 1886; elles ascendent à fr. 29,100,000 en 1901, c'est-à-dire 15 ans après l'introduction de la surveillance fédérale.

Est-ce à dire que le mode de surveillance adopté en Suisse soit le seul recommandable ailleurs? Personne en Suisse n'a la présomption de le croire. Au surplus, la loi suisse de surveillance de 1885 a besoin d'une revision. Mais du moins cette revision pourra désormais être opérée en connaissance de cause, grâce aux nombreuses expériences faites à loisir par l'autorité qui a exécuté la loi; et, selon toute prévision, à moins de circonstances extérieures, elle ne portera pas sur les principes qui caractérisent notre mode de surveillance.

Le but du présent exposé était moins de donner la loi fédérale comme exemple que de montrer plutôt comment, dans les conditions spéciales où se trouve la Suisse, desservie par une majorité de sociétés étrangères, l'on a su résoudre, de 1886 à aujourd'hui, la question No. 13 posée par le 4e Congrès international d'actuaires.

ABSTRACT.

ON THE FORM OF STATE SUPERVISION OF LIFE INSURANCE SOCIETIES IN SWITZERLAND.

By F. Rosselet.

It is shown in this paper that the federal supervision law of 1885 applies to all insurance societies doing business in Switzerland, the small friendly and cantonal societies excepted, and that this supervision is alike for the Swiss and foreign societies.

Switzerland, in order to safeguard the public interests in insurance matters, has adopted the system of supervision by a board of experts, holding that in the life insurance field, the State must substitute itself for the citizen in order to

study the question, too complicated for him, of the solvency of insurance companies.

This question of solvency is the vital one for the State. To assure it, the law has instituted the system of a careful technical study of the society preceding the authorization, which is followed by the permanent supervision of the board. The fact that up to the present the franchise has been given only for a limited period does not affect this principle of the franchise.

The societies must submit to the Federal Council, every year, a detailed account of their actual situation and submit each new method and combination and also all modifications in their previous status, for approval.

In order to have their solvency acknowledged the life insurance societies must fulfill certain conditions not provided for, either by the law, regulations or decrees of the executive authority. The Federal Council, assisted by its Insurance Board, is free to estimate the guarantees of solvency of the society, and for that purpose bases its opinion on the most recent scientific data. It estimates the guarantees as a whole, but yet demands that the mathematical reserves be valued according to correct principles and on bases as suitable as possible.

If a society no longer holds the necessary guarantees, the Federal Council cancels its franchise. There is no appeal against the rulings of the Federal Council.

The Swiss lawmaker has estimated that the system of supervision adopted is sufficient without the need of asking from the societies a deposit as large as the amount of their liabilities resulting from the insurance contracts. This deposit being in fact a special advantage for a class of insurants, is in opposition to the principle of the unity of the societies and can be a great burden for them. Switzerland asks only a small deposit, fixed by the Federal Council at about 100,000 fr., which is principally a security for the supervising authority.

Every year the Federal Council gives an account of its supervision, setting forth the situation of the companies supervised in a special report published according to law. This publication, however, is not to be mistaken for the reports which elsewhere constitute practically the only official supervision exercised over the societies. In a country where the public administration is open, the report of the Federal Insurance Board is the necessary adjunct of the supervision of the State, and, furthermore, it informs the people and aids them to make a selection *among good societies.*

KURZE NOTIZ.

ÜBER DIE FORM DER STAATLICHEN CONTROLLE VON LEBENSVERSICHERUNGS-GESELLSCHAFTEN IN DER SCHWEIZ.

Von F. Rosselet.

In vorstehendem Berichte wird dargelegt, dass das schweizerische Aufsichtsgesetz von 1885 auf alle in der Schweiz arbeitenden Versicherungsgesellschaften anwendbar ist, mit Ausnahme der kleinen Hülfskassen und der kantonalen Anstalten, und dass die staatliche Kontrolle die gleiche ist für schweizerische, wie für ausländische Gesellschaften.

Zum Schutze der öffentlichen Interessen bei der Versicherung hat die Schweiz das System der Beaufsichtigung durch eine Expertenbehörde gewählt. Die herrschende Ansicht ist die, dass auf dem Gebiete der Versicherung, namentlich der Lebensversicherung, der Staat an die Stelle des Bürgers treten muss, um die für diesen letzteren zu komplizierten Fragen zu studieren, ob eine Versicherungsgesellschaft vertrauenswürdig ist.

Diese Frage der Solidität der Gesellschaften ist beim schweizerischen Aufsichtssystem die Hauptfrage. Um sie zu lösen, hat das Gesetz das Konzessionssystem eingeführt. Die Konzessionserteilung hängt von einer ausführlichen technischen Voruntersuchung ab, und die konzessionierten Gesellschaften stehen unter der ständigen Kontrolle der Aufsichtsbehörde. Der Umstand, dass die Konzession bis jetzt nur für eine begrenzte Zeit erteilt wurde, ändert am Prinzipe der Konzession selbst nichts.

Die Versicherungsgesellschaften sollen dem schweizerischen Bundesrate jedes Jahr über ihre derzeitige Lage Bericht erstatten und jede neue Versicherungskombination oder Rechnungsmethode, wie überhaupt jede Abänderung ihres früheren Status zur Genehmigung vorlegen.

Um als vertrauenswürdig zu gelten, müssen die Gesellschaften verschiedenen

Anforderungen entsprechen, welche weder im Aufsichtsgesetz, noch in einer Vollziehungsverordnung, noch in einem Beschlusse des Bundesrates aufgezählt oder begrenzt sind. Der Bundesrat entscheidet durch das Organ seiner speziellen Expertenbehörde vollkommen frei über den Wert der von den Gesellschaften dargebotenen Garantien. Darin richtet er sich jeweilen nach den neuesten Angaben der Wissenschaft. Er würdigt die dargebotenen Garantien in ihrer Gesamtheit, legt trotzdem grosses Gewicht darauf, dass die mathematischen Deckungskapitalien nach richtigen Grundsätzen und auf angemessener Basis berechnet werden.

Einer Gesellschaft, welche die nötigen Garantien nicht mehr bietet, wird die Konzession entzogen. Gegen die Beschlüsse des Bundesrates ist kein Rekurs an eine weitere Behörde möglich.

Der schweizerische Gesetzgeber nahm an, dass sein Beaufsichtigungsmodus die Forderung einer Kaution im Betrage der Verbindlichkeiten aus den schweizerischen Policen überflüssig macht. Die Kaution in dieser Höhe bildet ein Privilegium bestimmter Versicherter; sie läuft dem Prinzipe der Einheit der Gesellschaften zuwider und kann den "internationalen" Gesellschaften grosse Unannehmlichkeiten bereiten. Die Schweiz verlangt nur eine geringe Kaution, welche die vollziehende Behörde bis jetzt auf Fr. 100,000 festgesetzt hat und die als Sicherheit namentlich für die Aufsichtsbehörde dient.

Der Bundesrat veröffentlicht jedes Jahr einen ausführlichen Bericht, in welchem er dem Publikum und dem Gesetzgeber über die Ausführung seiner Aufsicht Rechenschaft gibt. Diese Publizität darf aber keineswegs mit derjenigen verwechselt werden, die anderwärts die ganze amtliche Kontrolle bildet. In einem Lande, wojeder Teil der Verwaltung dem Bürger zur Einsicht frei stehen soll, ist der Bericht des eidgenössischen Versicherungsamtes eine notwendige Ergänzung der staatlichen Aufsicht; ausserdem soll dieser Bericht dem Bürger zur Belehrung dienen und ihm helfen, unter guten Gesellschaften zu wählen.

DIE BEDEUTUNG DES PRÄMIENRESERVEFONDS NACH DEM DEUTSCHEN PRIVATVERSICHERUNGSGESETZE.

Von Dr. Broecker, Berlin.

Kaiserlicher Regierungsrat im Aufsichtsamt für Privatversicherung. Mitglied des deutschen Vereins für Versicherungswissenschaft.

Vorwort.

In der nachfolgenden Abhandlung mussten vielfach Fragen erörtert werden, welche die amtliche Tätigkeit des Kaiserlichen Aufsichtsamts für Privatversicherung mehr oder weniger berühren. Es soll daher ausdrücklich hervorgehoben werden, dass es sich in allen Punkten nicht um eine Meinungsäusserung dieser Behörde, deren Mitglied der Verfasser nachstehender Arbeit ist, sondern lediglich um eine Privatarbeit des Verfassers handelt.

Einteilung des Stoffes.

I. Der technische Begriff der Prämienreserven für die verschiedenen Versicherungsarten.

II. Die Einstellung der Prämienreserve in die Jahres-Bilanz.

III. Die Prämienreserve für Rückversicherungen.

IV. Die Aussonderung und Belegung der Prämienreserve (Prämienreservefonds).

V. Das Register für die Bestände des Prämienreservefonds.

VI. Das Vorrecht der Versicherten im Falle des Konkurses.

VII. Die Prämienreserve für die deutschen Versicherten ausländischer Gesellschaften.

VIII. Die Schwierigkeiten der Übergangszeit.

I. Um die Bedeutung, welche der eigenartigen Behandlung des Prämienreservefonds durch das deutsche Privatversicherungsgesetz vom 12. Mai 1901 beizulegen ist, in richtiger Weise würdigen zu können, ist es notwendig, sich zuvor den technischen Begriff der Prämienreserve für die verschiedenen Versicherungsarten vor Augen zu führen. Es ist meine Absicht, durch Gegenüberstellen der Verschiedenheiten, zu der diese Begriffsbestimmung für die zu unterscheidenden Fälle führt, die gemeinsamen Merkmale der technischen Prämienreserve umso deutlicher hervortreten zu lassen. Hierbei lässt es sich natürlich nicht vermeiden, dass gewisse Gesichtspunkte in den Kreis der Erörterung gezogen werden müssen, deren Kenntnis bei dem Versicherungstechniker an sich als selbstverständlich vorausgesetzt werden kann. Der innige Zusammenhang jedoch, welcher zwischen dem technischen Begriffe der Prämienreserve und der praktischen Bedeutung des Prämienreservefonds im Sinne des deutschen Gesetzes besteht, macht ein Eingehen auf gewisse dem Mathematiker geläufige technische Einzelheiten unvermeidlich.

Das Privatversicherungsgesetz unterscheidet genau zwischen der „Prämienreserve“ und dem „Prämienreservefonds.“ Der Terminologie des Gesetzes entsprechend soll daher im Folgenden unter „Prämienreserve“ stets das sich nach den Rechnungsgrundlagen der Gesellschaft ergebende Resultat der Berechnungen des Mathematikers, d. i. das für die Erfüllbarkeit der sich aus den laufenden Versicherungsverträgen er-

gebenden Verpflichtungen erforderliche Reserve-„Soll" verstanden werden, während unter „Prämienreservefonds" die Gesamtheit der zur Bedeckung dieses „Solls" dienenden Vermögensbestände zu verstehen ist.

Der § 11 des Gesetzes bestimmt, dass u. a. auch die bei Ermittlung der Nettoprämien und Prämienreserve zur Anwendung gelangenden Rechnungsgrundlagen einen Bestandteil des der Prüfung durch die Aufsichtsbehörde unterliegenden „Geschäftsplans" einer Lebensversicherungsunternehmung bilden. Diese Rechnungsgrundlagen dürfen daher gemäss § 13 des Gesetzes ohne Genehmigung der Aufsichtsbehörde nicht geändert werden. In obiger Bedeutung sind zu den Rechnungsgrundlagen neben den Wahrscheinlichkeitstafeln und dem rechnungsmässigen Zinsfusse auch die für die Berechnung der Prämienreserve massgebenden mathematischen Formeln und Methoden zu rechnen. Aus den Formeln und Methoden soll namentlich auch zu ersehen sein, ob und in welchem Umfange eine allmähliche Tilgung der Abschlusskosten vorgenommen wird; das Gesetz bestimmt, dass bei Anwendung einer solchen Methode der Satz von $12\frac{1}{2}\,‰$ der Versicherungssumme nicht überschritten werden darf.

Die Vorschriften des § 11 gelten für die *Lebens*versicherung im weiteren Sinne. „Als Lebenversicherung im Sinne dieses Gesetzes gilt auch die Invaliditäts-, Alters-, Witwen-, Waisen-, Aussteuer- und Militärdienstversicherung, gleichviel ob auf Kapital oder Renten." (§ 6, Abs. 3.) Ausserdem bestimmt der § 12, dass die Vorschriften des § 11 auch auf Kranken- und Unfallversicherungsunternehmungen soweit Anwendung finden, als diese Unternehmungen „Versicherungen nach Art der Lebensversicherung" betreiben.

Sobald die Rechnungsgrundlagen angenommen sind, liegt der auf eine ganz bestimmte Versicherung für einen bestimmten Zeitpunkt entfallende Betrag der rechnungsmässigen Prämienreserve genau fest.

Bei der gegenseitigen lebenslänglichen Todesfall-Versicherung hat die Prämienreserve die Bedeutung eines rechnungsmässigen Ausgleichs für das mit dem Lebensalter des Versicherten steigende Risiko; ein solcher Ausgleich ist erforderlich, um den Gesellschaften die Erhebung von gleichbleibenden Jahresprämien zu ermöglichen. Die Prämienreserve kann hier in gewissem, wenn auch keineswegs in streng juristischem Sinne als ein Sparguthaben des Versicherten angesehen werden. Dasselbe gilt für eine sogenannte „gemischte" Versicherung, mit dem Unterschiede, dass hier ausser dem Ausgleiche für das steigende Risiko auch die Verpflichtung der Gesellschaft zur Auszahlung der Versicherungssumme bei Erreichung eines bestimmten Lebensalters des Versicherten die Ansammlung einer Prämienreserve bedingt. Dass bei Todesfall-Versicherungen während der Fortführung des Versicherungsbetriebes ein unbedingter Rechtsanspruch des Versicherten auf das volle, nach Deckung des Risikos der Gesellschaft für den einzelnen Versicherten verbleibende Reservegut-haben nicht anerkannt werden kann, folgt in erster Linie aus der Betrachtung, dass alle zur Feststellung der rechnungsmässigen Prämienreserve angestellten Berechnungen den Zusammenschluss einer ausreichenden Anzahl von Personen eines gewissen Gesundheitszustandes zur Voraussetzung haben, und dass eine Störung dieses notwendigen Zusammenhanges daher nicht ohne Einfluss auf die finanzielle Leistungsfähigkeit der Gesellschaft sein kann.

Bei den reinen Erlebensfall-Versicherungen fehlt das für die Notwendigkeit der Prämienreserve bei Todesfall-Versicherungen bedeutsame Moment des steigenden Risikos. Hier handelt es sich nur um die Ansammlung regelmässiger Einzahlungen zu dem Zwecke, die Auszahlung eines bestimmten Kapitals für einen bestimmten Termin zu ermöglichen,

Die Prämienreserve entsteht hier aus den Einzahlungen und deren Zinseszinsen, vermehrt um den Anteil der betreffenden Versicherung an den verfallenen Reserven der vor Erreichung des bestimmten Lebensalters verstorbenen Versicherten. In diesem Falle kann zweifellos noch weniger von einem unbedingten Rechtsanspruche des Versicherten an die volle Prämienreserve der einzelnen Versicherung den natürlichen Maszstab für reserve zur Erhöhung der Ansprüche der Überlebenden verfügbar sein muss; trotzdem tritt bei der *reinen* Erlebensfall-Versicherung der Charakter der Prämienreserve als Sparkapital des Versicherten noch deutlicher in die Erscheinung, als bei der Todesfall-Versicherung.

Wesentlich anders liegt die Sache bei den Renten-Versicherungen. Hier hat die Prämienreserve nicht die Bedeutung eines „angesammelten," sondern vielmehr diejenige eines „zurückbehaltenen" Guthabens; die Prämienreserve vermindert sich stetig um die aus ihr entnommenen Versicherungsleistungen. Bei der Versicherung von Überlebens-Renten findet eine „Ansammlung" von Prämienreserve statt bis zu dem Zeitpunkte, wo der Versorger stirbt; mit dem Tode des Versorgers tritt der Schadenfall ein: ein fingiertes Kapital wird fällig, aber bedingungsgemäss „zurückbehalten" und nach und nach durch Leistung einer lebenslänglichen Leibrente an die versorgte Person aufgezehrt.

Ähnlich verhält es sich bei der Versicherung von Unfall- und Invaliditäts-Renten. Auch hier gewinnt die Versicherung mit dem Eintritte des Schadenfalles den Charakter einer Rentenversicherung gegen fingierte einmalige Einzahlung.

Wir sehen also, dass in allen Fällen, mag es sich um die Ansammlung oder um die Zurückbehaltung von Prämienreserve-Guthaben handeln, die Prämienreserve eine notwendige Vorbedingung für die Erfüllbarkeit der künftigen Verpflichtungen der Gesellschaft bildet, über die daher der Gesellschaft eine völlig freie Verfügung nicht zugebilligt werden darf. Kann zwar dem einzelnen Versicherten aus der Verpflichtung der Gesellschaft zur buchmässigen Feststellung des in die Bilanz einzustellenden Prämienreserve-Solls für den gesamten am Bilanztage vorhandenen Versicherungsbestand ein unbedingtes Sonderrecht auf die auf seine Versicherung entfallende Prämienreserve nicht entfallen, so bildet doch die Prämienreserve der einzelnen Versicherung den natürlichen Maszstab für den Anteil dieser Versicherung an der Gesamt-Verbindlichkeit der Gesellschaft.

In richtiger Würdigung der in Obigem geschilderten Verhältnisse hat das deutsche Privatversicherungsgesetz denn auch für den Fall des Konkurses den Anspruch des einzelnen Versicherten in Höhe der auf ihn entfallenden rechnungsmässigen Prämienreserve anerkannt.

II. Rechnungsgrundlagen, Formeln und Methoden für die Berechnung der Einzel-Reserve genügen noch nicht zur Ermittlung des in die Bilanz einzustellenden Prämienreserve-Solls, da die Versicherungsjahre nicht immer mit dem Geschäftsjahre zusammenfallen. Es muss daher noch eine Methode festgelegt werden, nach welcher aus den rechnungsmässigen Beträgen der Prämienreserve jeder einzelnen Versicherung für *volle* Versicherungsjahre die Prämienreserve für den Schluss des Bilanzjahres ermittelt wird.

Die einfachste Methode besteht natürlich darin, dass zwischen dem Reservewerte für den Anfang des Versicherungsjahres und demjenigen für den Schluss des Versicherungsjahres interpoliert wird. Bei dieser Methode sind neben der so ermittelten Prämienreserve noch die *vollen* auf das nächste Geschäftsjahr entfallenden Prämienüberträge als Verbindlichkeit der Gesellschaft in die Bilanz einzustellen.

Einige deutsche Gesellschaften stellen auch als Prämienreserve für den Bilanztag einfach die Prämienreserve für den Schluss des am Bilanztage laufenden Versicherungsjahres ein, ohne die Prämienüberträge besonders zu berücksichtigen.

Eine andere Methode besteht darin, dass der Einfachheit halber angenommen wird, alle in demselben Geschäftsjahre abgeschlossenen Versicherungen beginnen genau in der Mitte des Jahres (am 1. Juli). In die Bilanz wird dann für jede Versicherung genau das Mittel zwischen der Reserve am Anfange und der Reserve am Schlusse des Versicherungsjahres eingestellt. Da viele deutsche Gesellschaften in ihren allgemeinen Versicherungsbedingungen von der Voraussetzung ausgehen, dass die Jahresprämie ein unteilbares Ganzes bilde und daher rechnungsmässig als am Beginne des Versicherungsjahres für das volle Versicherungsjahr im Voraus fällig zu betrachten sei, so gelten bei diesen Anstalten die am Beginne des Versicherungsjahres nicht sofort gezahlten Teile der Jahresprämie als gestundet. Am Beginne eines jeden Versicherungsjahres wird nach dieser Methode die volle Jahres-Nettoprämie der Prämienreserve zugeführt; die bei ratierlicher (monatlicher, vierteljährlicher, halbjährlicher) Prämienzahlung am Jahresschlusse noch nicht fälligen Raten werden als „gestundete Prämien" unter die Aktiva der Bilanz eingestellt. Bei dieser Berechnungs-Methode erscheinen die Prämienüberträge nicht besonders in der Bilanz: sie sind vielmehr bei der Reserveberechnung eingeschlossen. Als Bilanz-Reserve wird nämlich für jede Versicherung eingestellt der Betrag:

$$\tfrac{1}{2}(V_{u-1}+V_u+p_1)$$

wo V_{u-1} die Prämienreserve für den Anfang, V_u die Prämienreserve für den Schluss des am Bilanztage laufenden ten Versicherungsjahres und so die jährliche Nettoprämie bedeutet.

Die der Bilanzreserve als Gegenposten unter den Aktivis der Bilanz gegenüberstehenden „gestundeten Prämien" bilden gleichsam eine Schuld der Versicherten an die Gesellschaft. Viele Gesellschaften berechnen die „gestundeten Prämien" der Bilanz aus den Bruttoprämien, wobei sie nur, der Forderung der Rechnungsvorschriften des K. A. f. P.-V. entsprechend, die Zuschläge für ratierliche Zahlung ausser Ansatz bringen. Der frühere preussische Versicherungsbeirat hatte sich seiner Zeit auf den Standpunkt gestellt, dass von den gestundeten Prämien mindestens die auf diese Prämienteile entfallenden Provisionen zu kürzen seien.

In der sogenannten Volksversicherung liegen die Verhältnisse in der Regel wesentlich anders. Hier bildet die Grundlage des Vertrages meist nicht die unteilbare Jahresprämie, sondern die Ratenprämie (Wochenprämie); die Gesellschaften sind nach ihren Versicherungsbedingungen meist nicht berechtigt, im Falle vorzeitigen Erlöschens der Versicherung durch Tod oder Rückkauf die fehlenden Teile der Jahresprämie zu kürzen. Es kann daher auch bei der Volksversicherung, vorausgesetzt, dass die Versicherungsbedingungen nicht ausdrücklich anders lauten, von „gestundeten Prämien" nicht die Rede sein. Ebenso enthalten die Bilanzen der deutschen Lebensversicherungs-Gesellschaften bezüglich der Volksversicherung den Posten „Prämienüberträge" in der Regel nicht.

Vielfach wird von den deutschen Gesellschaften die Prämienreserve für die Bilanz nicht für jede Versicherung einzeln berechnet. Es finden vielmehr häufig Zusammenfassungen gleichartiger Versicherungen in Altersgruppen zum Zwecke einer summarischen Berechnung für jede Gruppe statt. Vorzüglich ist die von dem verstorbenen Mathematiker Dr. August Zillmer eingeführte Methode der summarischen Berechnung der Prämienreserve für die Bilanz; diese Methode gestattet die Zu-

sammenfassung aller lebenslänglichen und gemischten Todesfall-Versicherungen mit lebenslänglicher und abgekürzter Prämienzahlung in gemeinsame Gruppen nach dem am Bilanztage erreichten vollen Lebensalter.

Um die gesamte Prämienreserve für den Bilanztag feststellen zu können, müssen die Gesellschaften nach Schluss jedes Geschäftsjahres zunächst eine vollständige Aufnahme ihres Versicherungsbestandes für den Bilanztag bewirken. Hierzu gehört eine genaue Kenntnis des Zu- und Abganges während des Geschäftsjahres. Da nun die Meldungen über erloschene Versicherungen vielfach erst im Laufe der ersten Woche des neuen Geschäftsjahres eingehen, so muss den Gesellschaften für die gemäss § 56, Abs. 1 des Gesetzes vorgeschriebene Berechnung und Buchung der Prämienreserve eine angemessene Frist zugebilligt werden. Der erwähnte § 56 bestimmt ferner, dass die richtige Berechnung der Prämienreserve von einem Sachverständigen unter der Bilanz zu bescheinigen ist.

III. Da die Versicherten einen direkten Rechtsanspruch auf Erfüllung der sich aus dem Versicherungsvertrage ergebenden Verpflichtungen nur gegen diejenige Gesellschaft richten können, mit welcher sie den Vertrag abgeschlossen haben, so ist die Forderung durchaus berechtigt, dass jede Lebensversicherungs-Gesellschaft auch die auf *rückversicherte* Anteile an den Versicherungen entfallende Prämienreserve selbst sicherzustellen hat. Das deutsche Gesetz bestimmt daher mit Recht (§ 58), dass bei Rückversicherungen das rückversicherte Unternehmen die Prämienreserve für die in Rückdeckung gegebenen Summen nach den Vorschriften der §§ 56, 57 zu buchen, sowie selbst aufzubewahren und zu verwalten hat.

Das Rückversicherungsgeschäft der im deutschen Reiche arbeitenden Gesellschaften erstreckt sich in der Lebensversicherung im Wesentlichen naturgemäss nur auf die Todesfall-Versicherungen. Es kommen jedoch auch Rückversicherungen anderer Versicherungsarten vor, für welche ein ebenso naheliegendes Bedürfnis nach Rückversicherung nicht vorhanden zu sein scheint. Dies ist namentlich der Fall bei der sogenannten Quoten-Rückversicherung, bei welcher, im Gegensatze zu der Excedenten-Rückversicherung, gewisse Teile (Quoten) des gesamten Versicherungs-Bestandes einer Unternehmung an eine Rückversicherungs-Gesellschaft in Rückdeckung gegeben werden.

Für die buchmässige Behandlung der Rückversicherung von Todesfall-Versicherungen kamen bisher in Deutschland neben einander zwei verschiedene Formen vor. Nach der ersten Form wird der Rückversicherungs-Gesellschaft für die Übernahme des Risikos der auf die rückversicherte Summe entfallende Anteil an der vollen Versicherungsprämie nach Abzug gewisser durch den Rückversicherungsvertrag bedungener Provisionsbeträge vergütet. Die Rückversicherungs-Gesellschaft ist dann verpflichtet, aus der ihr überwiesenen Rückversicherungsprämie die anteilige Prämienreserve selbst anzusammeln und im Schadenfall die volle anteilige Versicherungssumme zu ersetzen. Nach der zweiten Form wird dagegen an die Rückversicherungs-Gesellschaft nur die Risiko-Prämie gezahlt, wogegen sie nur verpflichtet ist, den die angesammelte Prämienreserve übersteigenden Teil der rückversicherten Summe zu vergüten; in diesem Falle wird die Prämienreserve von der direkt abschliessenden Gesellschaft verwaltet. An Stelle der Überweisung der Risikoprämie wird auch häufig das folgende einfache buchmässige Verfahren angewandt: Bei Abschluss der Versicherung und bei Beginn jedes neuen Versicherungsjahres wird der Rückversicherungsgesellschaft die volle an-

teilige Bruttoprämie gutgebracht und die vertragsmässige Provision belastet; am Schlusse jedes Bilanzjahres wird dagegen der Rückversicherungs-Gesellschaft die rechnungsmässige Prämienreserve für den Bilanztag belastet. Diese Buchungsmethode hat im Wesentlichen denselben Erfolg, wie die Gutschrift der Risikoprämie; der Vorteil besteht hauptsächlich in der grösseren Einfachheit, da die besondere Feststellung der von Jahr zu Jahr veränderlichen Risikoprämie vermieden wird.

IV. Nachdem in der unter II. beschriebenen Weise alljährlich die Berechnung und Buchung der Prämienreserve nach den festliegenden Rechnungsgrundlagen und Bilanz-Grundsätzen erfolgt ist, hat die Gesellschaft zur Aussonderung der als Bedeckung der Prämienreserve dienenden Bestände aus dem übrigen Vermögen der Anstalt gemäss der Vorschrift des § 57 des Gesetzes zu schreiten. Diese gesetzliche Vorschrift beruht auf der gewiss sehr berechtigten Vorstellung, dass die Prämienreserve, von deren ausreichender Bemessung die Erfüllbarkeit der den Versicherten gegenüber übernommenen Verpflichtungen in wesentlichstem Masze abhängt, unter allen Umständen sicher zu stellen sei. Eine derartige Auffassung stützt sich in erster Linie auf die unter I. erläuterte technische Natur und wirtschaftliche Bedeutung der Prämienreserve, d. i. auf ihre Eigenart als aufgezinste Summe derjenigen Teile der gezahlten Prämie, welche dem Spar-Interesse des Versicherten zu dienen bestimmt und daher eines ganz besonderen Schutzes bedürftig sind. Diese Auffassung war es, welche den Gesetzgeber veranlasst hat, den wichtigen und für die zukünftige Entwickelung des Lebensversicherungswesens in Deutschland ausserordentlich bedeutsamen Schritt von der „buchmässigen“ Aussonderung der Prämienreserve zu der „körperlichen“ Aussonderung zu tun. Der hiermit von dem Gesetzgeber beschrittene Weg ist ein durchaus neuer und findet in der Gesetzgebung anderer Staaten meines Wissens keinerlei Vorbild.

Der den Versicherten durch die „körperliche“ Aussonderung und Sicherstellung des Prämienreservefonds gebotene Schutz ist natürlich kein absoluter, da die Feststellung des Prämienreserve-Bedarfs auf Wahrscheinlichkeitsannahmen beruht, welche hinsichtlich der Güte des Versicherungsbestandes eine gewisse durchschnittliche Zusammensetzung voraussetzen. Es muss daher nach wie vor die stete Aufgabe des Vorstandes einer Lebensversicherungs-Unternehmung sein, dafür zu sorgen, dass die durchschnittliche Zusammensetzung den gewählten Rechnungsgrundlagen entspricht. Auch muss Vorsorge getroffen werden, dass der aus den Kapitalanlagen der Gesellschaft tatsächlich erzielte Zinsertrag dauernd ausreicht, die rechnungsmässig notwendige Verzinsung des Prämienreservefonds zu gewährleisten.

Die „körperliche“ Aussonderung des Prämienreservefonds aus dem übrigen Vermögen der Gesellschaft bedingt, dass ganz bestimmte Vermögensstücke als zur Belegung der Prämienreserve gehörig bezeichnet werden müssen und mit dem übrigen Vermögen der Anstalt in keiner Weise vermischt werden dürfen. Die Sicherheit der Ansprüche der Versicherten an den Prämienreservefonds hängt aber nicht nur davon ab, dass der Prämienreservefonds zu jeder Zeit aus Werten besteht, deren Gesamtbetrag dem nach einwandfreien Rechnungsgrundlagen ermittelten Prämienreserve-„Soll“ entspricht; es ist vielmehr auch erforderlich, dass zur Belegung der Prämienreserve nur solche Werte Verwendung finden, welche zu denjenigen Beträgen, mit welchen sie in die Bilanz eingestellt werden, auch realisierbar sind. Neben der Wahl der Rechnungsgrundlagen spielt also die Wahl der zur Belegung der Prämienreserve bestimmten Vermögensstücke bei Beurteilung der Bonität

des Prämienreservefonds eine ausschlaggebende Rolle. Der Gesetzgeber hat es daher für notwendig gehalten, ganz bestimmte Vorschriften darüber zu geben, welche Arten von Werten als Bestandteile des Prämienreservefonds aufgenommen werden dürfen (§ 59 des Gesetzes).

An erster Stelle kommen für die Belegung der Prämienreserve naturgemäss die Wertpapiere in Betracht. Zugelassen sind nicht nur die gemäss § 1807 des Bürgerlichen Gesetzbuchs als mündelsicher geltenden Wertpapiere, sondern in beschränktem Umfange (bis zu $^1/_{10}$ des gesamten Prämienreservefonds) auch die nach landesgesetzlichen Vorschriften zur Anlegung von Mündelgeld zugelassenen Wertpapiere, sowie gewisse Arten von Pfandbriefen deutscher Hypothekenaktienbanken.

Für die Bewertung der Wertpapiere in der Bilanz gilt die Vorschrift des § 261 des Handelsgesetzbuchs, welche lautet:

„Wertpapiere oder Waaren, welche einen Börsen- oder Marktpreis haben, dürfen höchstens zu dem Börsen- oder Marktpreise des Zeitpunktes, für welchen die Bilanz aufgestellt wird, sofern dieser Preis jedoch den Anschaffungs- oder Herstellungspreis übersteigt, höchstens zu dem letzteren eingestellt werden."

Bei den deutschen Lebensversicherungs-Anstalten spielt die Vermögensanlage in Wertpapieren nur eine verhältnismässig untergeordnete Rolle. Von weitaus grösserer praktischer Bedeutung ist die Anlage in Hypotheken. Für solche Anlagen schreibt das Gesetz Mündelsicherheit im Sinne des § 1807 des Bürgerlichen Gesetzbuchs vor. Weitere Bestimmungen betreffend die zur Belegung der Prämienreserve geeigneten Hypotheken enthält der § 60 des Privatversicherungsgesetzes.

Dass auch „Vorauszahlungen und Darlehen auf die eigenen Versicherungsscheine des Unternehmens nach Massgabe der allgemeinen Versicherungsbedingungen" zur Bedeckung der Prämienreserve geeignet sein müssen, ergibt sich aus der Natur der Sache von selbst. Denn die dem Versicherten aus seinem Reservekapital bereits vorschussweise in eigene Verfügung übergebenen Beträge sind der Verfügung der Verwaltung der Gesellschaft entzogen und bedürfen daher nicht mehr der Sicherstellung. Policebeleihungen kommen naturgemäss nur bei denjenigen Versicherungsarten vor, bei denen nach den allgemeinen Versicherungsbedingungen bezw. nach der Eigentümlichkeit der betreffenden Versicherungsart ein Rückkauf zulässig zu erachten ist.

Mit Genehmigung der Aufsichtsbehörde kann schliesslich die Anlegung des Prämienreservefonds auch in Schuldverschreibungen gewisser öffentlicher Verbände erfolgen (§ 59, Absatz 1, Nummer 4).

Von grösserer Bedeutung ist noch die Frage, wie diejenigen Unternehmungen sich zu verhalten haben, welche bisher einen erheblichen Teil ihres Vermögens in Grundbesitz angelegt haben. Wenn auch gemäss § 54 des Gesetzes den Versicherungsunternehmungen der Besitz von Grundstücken insoweit nicht verboten ist, als es sich entweder um Grundstücke handelt, welche im Zwangsversteigerungsverfahren oder ausserhalb dieses Verfahrens zur Sicherstellung eingetragener Forderungen erworben wurden, oder um Grundstücke, welche für die Zwecke des Geschäftsbetriebes bestimmt sind, so erscheint doch eine Anlegung von Beständen des Prämienreservefonds nach § 59 des Gesetzes an sich nicht zulässig. Wenn jedoch die betreffende Gesellschaft auf ihrem eigenen Grundstück eine Eigentümer-Hypothek oder eine Eigentümer-Grundschuld besitzt, so kann die so eingetragene Forderung als Bestandteil des Prämienreservefonds zugelassen werden.

V. Die Bestände des Prämienreservefonds sind gemäss § 57, Absatz 3 einzeln in ein Register einzutragen. Nur bezüglich der Darlehen

auf Policen ist die summarische Eintragung gestattet. Durch die Eintragungen in das Register wird die Aussonderung der zur Belegung der Prämienreserve bestimmten Vermögensstücke aus dem gesamten Vermögen der Anstalt erst rechtsgültig vollzogen.

Das Kaiserliche Aufsichtsamt hat für diese Eintragungen besondere Formulare vorgeschrieben und zwar getrennt nach den gemäss § 59 des Gesetzes zugelassenen verschiedenen Gattungen von Kapitalanlagen. Aus den zu diesen Formularen gegebenen Erläuterungen seien hier nur die folgenden Worte wiedergegeben, welche in zutreffender Weise die Bedeutung des Registers kennzeichnen:

„Für die Einrichtung des Prämienreserve-Registers muss in erster Linie massgebend sein, dass sich aus ihm *die Identität der einzelnen Vermögensstücke,* welche zum Prämienreservefonds gehören, jederzeit zweifelsfrei ergibt. Es genügt daher z. B. bei Wertpapieren nicht die Angabe des Wertes, vielmehr muss das einzelne Stück nach Gattung und Nummer genau bezeichnet werden. Das Gesetz lässt in dieser Beziehung nur die Ausnahme zu, dass die Forderungen aus Vorauszahlungen oder Darlehen auf die eigenen Versicherungsscheine des Unternehmens (Policebeleihungen), soweit sie zu den Beständen des Prämienreservefonds gehören, nur in einer Gesamtsumme nachgewiesen werden brauchen (§ 59, Absatz 1, Nummer 3). Alle übrigen Vermögensstücke müssen aber einzeln genau bezeichnet werden.

„Bei allen Vermögensstücken des Prämienreservefonds ist es notwendig, dass das Prämienreserve-Register auch den Wert nachweist, mit welchem die einzelnen Stücke dem Prämienreservefonds angerechnet sind. In den Fällen des § 59, Absatz 1, Nummer 2 ist der Wert, der höchstens angerechnet werden kann, vom Gesetze direkt vorgeschrieben. In den andern Fällen kann nur der Wert in Frage kommen, welcher in die Bilanz der Gesellschaft eingestellt ist, also entweder der Wert, den die Gesellschaft bei der Anschaffung hat aufwenden müssen — gleichviel, ob diese Anschaffung seiner Zeit für das freie Vermögen oder den Prämienreservefonds —, oder der Kurswert am Schlusse des Geschäftsjahres, falls dieser niedriger ist. ...“

Da das Prämienreserve-Register, der Absicht des Gesetzgebers entsprechend, nur zum Nachweise über die Sicherstellung des den Versicherten im Konkursfalle zustehenden Vorzugsrechts dienen soll, so war es notwendig, in den vorgeschriebenen Formularen nur solche Angaben zu fordern, welche zur Erreichung des obigen Zweckes notwendig sind. Es durften mithin namentlich keine Mitteilungen verlangt werden, welche lediglich Kontrollzwecken dienen sollen. Die Kontrolle der Vermögensbestände einer Lebensversicherungsunternehmung ist eine Aufgabe, deren Behandlung zweifellos auch zu der Zuständigkeit des Aufsichtsamtes gehört, aber auf anderm Wege, als mit Hülfe des Prämienreserve-Registers, wird angebahnt werden müssen.

Die beiden Anlagen zeigen je 1 Blatt eines ausgefüllten Formulars nach dem vom Kaiserlichen Aufsichtsamte vorgeschriebenen Muster; die Formulare beziehen sich auf Eintragungen von Wertpapieren und Hypotheken.

Im Sinne des Privatversicherungsgesetzes stellt die Gesamtheit der Versicherten einer Lebensversicherungs-Gesellschaft einen Gläubigen dar, welcher für den Fall des Konkurses seines Schuldners bis zum Betrage der rechnungsmässigen Prämienreserve Anspruch auf bevorrechtigte Befriedigung aus dem Vermögen des letzteren besitzt. Die zur Sicherung dieses bevorrechtigten Anspruchs bestimmten Vermögensstücke bilden den *Prämienreservefonds.* Das *Prämienreserve-Register*

enthält, kaufmännisch gesprochen, die Inventur des Prämienreservefonds.

VI. Wenn eine nach Massgabe des Privatversicherungsgesetzes beaufsichtigte Lebensversicherungs-Unternehmung nicht mehr in der Lage ist, die nach ihren Rechnungsgrundlagen erforderliche Prämienreserve zurückzulegen, und wenn die Aufsichtsbehörde nach sorgfältiger Prüfung der Sachlage die Überzeugung gewinnt, dass eine Sanierung der Unternehmung nicht durchführbar oder unzweckmässig erscheint, so tritt der Konkurs ein. Im Falle des Konkurses erlöschen alle Versicherungsverträge; die Versicherten haben alsdann aber Anspruch an den Prämienreservefonds in Höhe der auf jede Versicherung entfallenden rechnungsmässigen Prämienreserve. Die etwaigen sonstigen Gläubiger der Unternehmung haben insoweit keinen Anspruch auf Befriedigung aus dem Prämienreservefonds. Für den Fall, dass die Bestände des Prämienreservefonds sich nicht als ausreichend erweisen sollten, die Ansprüche aller Versicherten auf die rechnungsmässige Prämienreserve zu erfüllen, können die Versicherten ihre Mehransprüche neben den Forderungen der anderen Gläubiger gegen das sonstige Vermögen der Gesellschaft also auch gegen das etwa vorhandene Actien- oder Garantie-Kapital geltend machen.

Das Gesetz bestimmt, dass den Versicherten zur Wahrung ihrer Interessen im Konkurse ein Pfleger bestellt werden soll.

Es ist selbstverständlich, dass die Aufsichtsbehörde bestrebt sein wird, im Interesse der Versicherten den Konkurs von Lebensversicherungs-Unternehmungen nach Möglichkeit zu vermeiden. Zu diesem Zwecke stehen der Aufsichtsbehörde verschiedene Mittel zur Verfügung. So ist die Aufsichtsbehörde nach § 69, Absatz 2 berechtigt, wenn an sich die Voraussetzungen des Konkurses vorliegen, zu seiner Vermeidung die Versicherungsansprüche um höchstens 33⅓% herabzusetzen. Auch kann sie ihren Einfluss geltend machen, um die Fusion einer notleidenden Anstalt mit einem kapitalfähigen Unternehmen herbeizuführen (§ 14 des Gesetzes).

Die Sanierung einer notleidenden Lebensversicherungs-Gesellschaft dürfte, wo sie überhaupt in irgend einer gesetzlich zulässigen Form durchführbar erscheint, vom Standpunkte der Interessen der Versicherten dem Konkurse regelmässig vorzuziehen sein, da selbst die baare Auszahlung der vollen rechnungsmässigen Prämienreserve dem Versicherten nur dann ein genügendes Äquivalent für das Erlöschen des Versicherungsvertrages bietet, wenn es ihm möglich ist, ohne Schwierigkeiten unter den seinem früheren Vertrage zu Grunde liegenden Bedingungen Aufnahme bei einer andern Lebensversicherungs-Anstalt zu finden; handelt es sich um normale Versicherung auf den Todesfall, so ist naturgemäss der unveränderte Besitz einer guten Gesundheit die ausschlaggebende Bedingung für eine solche Aufnahme.

VII. Für die deutschen Versicherten ausländischer Gesellschaften hat das Gesetz noch durch besondere Bestimmungen erhöhte Vorsorge getroffen. Nach diesen Bestimmungen ist der Prämienreservefonds für diese Versicherten nach näherer Anweisung des Kaiserlichen Aufsichtsamts in der Weise sicherzustellen, dass nur mit Genehmigung des letzteren darüber verfügt werden darf (§ 90, Absatz 2). Im Übrigen haben sich die ausländischen Gesellschaften hinsichtlich der Prämienreserve für die deutschen Versicherten den sämtlichen Vorschriften des Gesetzes über die Aussonderung und Belegung der Prämienreserve, Eintragung der Bestände des Prämienreservefonds etc. in gleicher Weise zu unterwerfen,

Lfd. Nr.	Die neue Eintragung bezieht sich auf die frühere Eintragung Nr.	Tag der Eintragung in das Prämienreserve-Register	Angabe (durch den Anfangsbuchstaben), ob Hypothek, Grund- oder Rentenschuld	Betrag: Zugang (in schwarzer Tinte) Mark	Betrag: Abgang (in rother Tinte) Mark	Das belastete Grundstück: liegt im Gemeindebezirke	Das belastete Grundstück: liegt Straße	Das belastete Grundstück: liegt Nr.	des Amtsgerichts (Sofern das Grundbuch pp nicht beim Amtsgerichte verwahrt wird, ist die Verwahrungsbehörde zu bezeichnen)	Die Belastung ist eingetragen im Grundbuche (Hypothekenregister pp.): Band	Blatt	Abth. III Nr.	am	Ist eine regelmäßige Tilgung vereinbart?	Ist ein Hypothekenbrief ausgestellt?	Bezeichnung des Aufbewahrungsorts der Schuld	Bemerkungen
1	2	3	4	5.	6.	7.	8.	9.	10	11	12.	13.	14.	15.	16.	17.	18
1		1. 7. 1902	H	83 000	.	Berlin	Gustav-	10	Berlin	U. N. B. 63.	2 877	5. 6.	15. 6. 1902	—	ja	Schrank I	
2		1. 7. 1902	H	55 000	.	Berlin	Gustav-	14	Berlin	U. N. B. 69.	3 037	1.	1. 4. 1899	—	„	„	Zu Nr. 2 vergl. Nr. 39.
3		1. 10. 1902	H	154 900	.	Berlin	Gustav-	27	Berlin	U. N. B. 70.	3 065	1. 2.	28. 9. 1901	ja	„	„	Zu Nr. 3 vergl. Nr. 38.
4		20. 10. 1902	H	80 000	.	Charlottenburg	Marburger-	1	Charlottenburg	St. Ch. 81.	3 110	1. 5.	10. 10. 1902	—	„	„	Zu Nr. 4 vergl. Nr. 42.
5		31. 12. 1902	H	100 000	.	Berlin	Moabit	32	Berlin	H. 13.	531	1. 2. 3. 16. 17. 18.	10. 1. 1898	—	„	„	
6		„	G	70 000	.	Berlin	Potsdamer-	49	Berlin	K. 86.	4 451	1. 2.	20. 9. 1897	—	„	„	
7		„	H	40 000		Charlottenburg	Schiller	190	Charlottenburg	St. Ch. 97.	3 717	1. 2. 3.	20. 9. 1900				
8		„	H	36 000	.	Breslau	Garten-	145	Breslau	L. 4b.	673/154	1.	10. 1. 1900	—	„	„	
38	3	31. 12. 1902	H		154 900	Berlin	Gustav-	27	Berlin	U. N. B. 70.	3 065	1. 2.	28. 9. 1901	—	—	—	Abgang wegen theilweiser Amortisation.
38	3	31. 12. 1902	H	154 900	.	Berlin	Gustav-	27	Berlin	U. N. B. 70	3 065	1. 2.	28. 9 1901				

Abgeschlossen für das Geschäftsjahr 1902 am 6 Januar 1903 mit der Summe

von 2 565 500 Mk.

Die Direktion

gez. N. N.

Eintragungen für das Jahr 1903.

39	2	1. 4. 1903	H		55 000	Berlin	Gustav-	14	Berlin	U. N. B. 69.	3 037	1.	1. 4. 1899	—	—	—	
40	.	10. 4. 1903	H	54 000	.	Berlin	Wilhelm-	40	Berlin	H. 13.	531	1. 4. 10.	5. 4. 1903	—	ja	Schrank I	
41	.	1. 7. 1903	H	85 000	.	Berlin	Hamburger-	10	Berlin	U. N. B. 69.	3 180	1. 6.	20. 6. 1903	—	ja	desgl.	
42	4	1. 7. 1903	H		80 000	Charlottenburg	Marburger-	1	Charlottenburg	St. Ch. 81.	3 110	1. 5.	10. 10. 1902	—	—	—	
43	7	1. 10. 1903	H		40 000	Charlottenburg	Schiller-	109	Charlottenburg	St. Ch. 97.	3 717	1. 2. 3.	20. 9. 1900	—	—	—	Abgang wegen Theilzahlung.
43	7	1. 10. 1903	H	35 000	.	Charlottenburg	Schiller-	109	Charlottenburg	St. Ch. 97.	3 717	1. 2. 3.	10. 9. 1900 / 20. 10. 1903	—	ja	desgl.	

Dr. Broecker.

wie die inländischen Unternehmungen. Namentlich gelten die Bestimmungen über *alljährliche* Berechnung und Buchung der Prämienreserve auch für die *deutschen* Versicherungen derjenigen ausländischen Gesellschaften, welche nach ihrer Satzung und nach den in ihrem Heimatlande geltenden gesetzlichen Vorschriften an sich nicht verpflichtet sind, eine alljährliche Berechnung der Prämienreserve vorzunehmen.

Die von ausländischen Anstalten im Inlande sicherzustellenden Bestände des Prämienreservefonds für die im Inlande abgeschlossenen Versicherungen haben nach den Vorschriften des Gesetzes ausschliesslich inländische Werte zu umfassen.

Von den in Preussen tätigen ausländischen Lebensversicherungs-Unternehmungen wurde früher eine Kaution bis zur Höhe der halben Prämienreserve der preussischen Versicherungen gefordert. Diese Kaution konnte nur in deutscher Reichsanleihe oder in preussischen Konsols gestellt werden; die zur Kautionsstellung bestimmten Wertpapiere mussten in das Schuldbuch des deutschen Reiches, bezw. in das preussische Staatsschuldbuch, eingetragen werden.

VIII. Zur Erfüllung der ihnen durch das Privatversicherungsgesetz hinsichtlich der Behandlung des Prämienreservefonds auferlegten Verpflichtungen ist den im deutschen Reiche arbeitenden Lebensversicherungs-Gesellschaften eine Übergangsfrist gewährt worden. Diese Frist beträgt für die Aussonderung und Aufbewahrung 3 Jahre und für die Belegung nach den Vorschriften des § 59 5 Jahre (§ 99 des Gesetzes). Ausnahmsweise kann Verlängerung der Fristen bewilligt werden. Sofortige Befolgung aller gesetzlichen Vorschriften ist nur hinsichtlich der Prämienreserve der nach dem 1. Januar 1902 abgeschlossenen inländischen Versicherungen gefordert worden. Durch Gewährung der Übergangsfristen ist den Interessen der Lebensversicherungs-Anstalten in weitgehendster Weise Rechnung getragen.

Diejenigen Lebensversicherungs-Unternehmungen, deren Reservelegung den Anforderungen der Aufsichtsbehörde nicht genügt, können zur Änderung ihrer Rechnungsgrundlagen binnen einer *angemessenen* Frist angehalten werden. Der Gesetzgeber vermeidet es absichtlich, hier eine bestimmte Frist vorzuschreiben, da die Verhältnisse bei den verschiedenen Anstalten sehr verschieden liegen können und in vielen Fällen durch ein rigoroses Vorgehen der Aufsichtsbehörde die Interessen der Versicherten nicht gefördert, sondern im Gegenteil nur geschädigt werden würden.

Eine grosse Anzahl inländischer und ausländischer Unternehmungen haben bisher nur in solchen deutschen Bundesstaaten gearbeitet, in denen sie einer behördlichen Beaufsichtigung nicht unterworfen waren. Mit andern Anstalten, welche schon einer behördlichen Aufsicht unterstanden, sind von den früheren Aufsichtsbehörden bereits Unterhandlungen wegen Änderung der Rechnungsgrundlagen eingeleitet, aber bis zum Inkrafttreten des Privatversicherungsgesetzes noch nicht beendet worden. Solche Verhandlungen müssen nun nach Übergang der Aufsicht von den betreffenden Bundesstaaten auf das Reich durch das Kaiserliche Aufsichtsamt zu Ende geführt werden. In allen Fällen, in denen es sich um die Sanierung von Lebensversicherungs-Anstalten handelt, wird die Reichs-Aufsichtsbehörde, vorausgesetzt, dass die Verhältnisse nicht gerade zu hoffnungslos sind, das Bestreben zeigen müssen, möglichst schonend und allmählich vorzugehen.

Das Kaiserliche Aufsichtsamt hat sich bei allen bisherigen Verhandlungen betreffend Sanierung des technischen Rückgrates notleiden-

der Anstalten bisher im Wesentlichen stets von dem Gesichtspunkte leiten lassen, dass für neu abzuschliessende Versicherungen möglichst bald einwandfreie Rechnungsgrundlagen zur Einführung gelangen müssen, dass dagegen die Beurteilung der Verhältnisse des alten Geschäftes möglichste Schonung erfordert. Bei ausländischen Unternehmungen verlangen vielfach die Verhältnisse des ausserdeutschen Geschäfts eine andere Behandlung, als diejenigen des inländischen Geschäftes dieser Anstalten, wenn auch andererseits vielfach der Anschauung entgegengetreten werden musste, dass die Rechnungsgrundsätze für das ausserdeutsche Geschäft ausländischer Gesellschaften die Aufsichtstätigkeit der deutschen Aufsichtsbehörde überhaupt nicht berühren. Denn es unterliegt wohl keinem Zweifel, dass die deutschen Versicherten ausländischer Lebensversicherungs-Gesellschaften, namentlich wenn ihnen bei Abschluss des Versicherungs-Vertrages eine Beteiligung an dem Geschäftsgewinn der betreffenden Gesellschaft in Aussicht gestellt wurde, über ihren Anspruch an den Prämienreservefonds hinaus an dem Gedeihen der Anstalt, bei welcher sie Versicherung genommen haben, interessiert sind, und dass eine Gefährdung dieser weitergehenden Interessen durch einen nicht genügend vorsichtigen Geschäftsbetrieb im Auslande der inländischen Aufsichtsbehörde vom Standpunkte des deutschen Privatversicherungsgesetzes nicht gleichgiltig sein kann.

Formular Pr. R. 1.

Prämienreserve-Register

der _____

_____

_____ Versicherungsgesellschaft

_____ in _____

Abtheilung IA.

Nachweisung

der dem Prämienreservefonds zugehörigen Hypotheken, Grund- und Rentenschulden.

In welchem Gebäude und in welchem Raume sind die Schuld- und Pfandurkunden aufbewahrt?

In dem Geschäftshause zu Stuttgart, Herrmannstraße 100, Kassengewölbe B.

Formular Pr. R. 3.

Prämienreserve-Register

der _____

_____

_____ Versicherungsgesellschaft

_____ in _____

Abtheilung IIA.

Nachweisung

der dem Prämienreservefonds zugehörigen Werthpapiere und Schuldverschreibungen.

Bemerkung: Für jede Gattung von Werthpapieren sowie für die nach §. 59 Abs. 1 Nr. 4 des Gesetzes zugelassenen Schuldverschreibungen ist eine besondere Unterabtheilung zu bilden.

Unterabtheilung I.

Bestand an 3½% Reichsanleihe (ursprünglich 4%, vom 1. October 1897 ab 3½%)
— Reichsgesetz vom 16. März 1885 —

Wo sind die Urkunden aufbewahrt?

In dem Geschäftshause zu Stuttgart, Herrmannstraße 100,
Kassengewölbe A, Schrank II.

Lfd. Nr.	Die **neue** Eintragung bezieht sich auf die **frühere** Eintragung Nr.	Tag der Eintragung in das Prämienreserve-Register	Der Werthpapiere (Schuldverschreibungen) Serie und Nr.	Nennwerth Zugang (in schwarzer Tinte) Mark	Nennwerth Abgang (in rother Tinte) Mark	Anschaffungskurs %	Bemerkungen
1.	2.	3.	4.	5.	6.	7.	8.
1		1. 7. 1902	C. 597 bis 650	54 000		101	
2		„	C. 1197	1 000		102	
3		„	C. 1346	1 000		103,5	
4		1. 10. 1902	C. 1528	1 000		101	
5		„	D. 16	500		102	
6		„	D. 38	500		102	
7		1. 11. 1902	D. 46	500		102	
8		20. 1. 1903	D. 55	500		102	per 31. 12. 1902
9		„	D. 68	500		102	desgl.
10		„	D. 197	500		102	desgl.

Bestand per 31. 12. 1902: 60 000

Kurs am 31. 12. 1902: 101

Bilanzwerth am 31. 12. 1902: Mk. 60 600

Abgeschlossen am 31. Dezember 1902.

Die Direktion.

Lfd. Nr.	Die **neue** Eintragung bezieht sich auf die **frühere** Eintragung Nr.	Tag der Eintragung in das Prämienreserve-Register	Der Werthpapiere (Schuldverschreibungen) Serie und Nr.	Nennwerth: Zugang (in schwarzer Tinte) Mark	Nennwerth: Abgang (in rother Tinte) Mark	Anschaffungskurs %	Bemerkungen
1.	2.	3.	4.	5.	6.	7.	8.
			Eintragungen für das Jahr 1903.				
			Uebertrag:	60 000			
11		1. 4. 1903	E. 383	200		103,5	
12		1. 4. 1903	D. 286	500		103	
13	3	1. 7. 1903	C. 1346		1 000	103,5	
14		1. 7. 1903	D. 726	500		103	
15	6	1. 8. 1903	D. 38		500	102	
16		15. 9. 1903	D. 811	500		103	
			Bestand Ende 1903:	61 700 —	1 500		
				60 200			

Kurs am 31. 12. 1903: 101

Bilanzwerth am 31. 12. 1903: Mk. 60 802

Abgeschlossen am 31. Dezember 1903.

Die Direktion.

ABSTRACT.

THE IMPORTANCE OF THE PREMIUM RESERVE FUNDS UNDER THE GERMAN PRIVATE INSURANCE LAWS.

By Dr. Broecker.

The report is divided into eight sections, the principal contents of which are briefly given herewith as follows:

I. The Technical Meaning of Premium Reserves for the Different Forms of Insurance.

In order to estimate properly the particular treatment of the premium reserves by the German Imperial Law of May 12, 1901, regarding private insurance enterprises, it is necessary to consider first of all the importance of premium reserves for the different forms of insurance. This importance is different for capital insurances or annuity insurances, insurances in case of death or endowment insurances. For all these forms of insurance the premium reserves are to be considered in the technical sense as "credit" to the insured. This does not mean, however, that the insured have an absolute legal claim on this "credit." On the contrary, the premium reserves of the individual insurances form merely the natural proportion of the share of the individual insurances to the entire accountable obligations of the Company.

The German Private Insurance Law recognizes only the legal claim of an insured individual to his share of the premium reserves in case of the bankruptcy of the insurance company. The amount of the premium reserves apportioned for each insurance can be arrived at by using the fixed principles of accounting and formulæ, which cannot be changed without consent of the Board of Control, as per Section 13 of the Law.

II. The Calculation of the Premium Reserves in the Yearly Balances.

Besides the fundamental idea in calculating the premium reserves of each insurance every life insurance company is required also to fix the principles of the entry of the premium reserves for the total insurances in the balance sheet. The German life insurance companies have adopted several different methods of entering the premium reserves in the balance sheet. The most companies assume that the insurances begin, on the average, exactly in the middle of the year (July 1st), and that the premiums are due at the beginning of each insurance year for the whole year in advance. This explains the contre-item of "*time granted for payment of premiums amounting to*" in the assets of the balance sheets.

Often the German companies estimate the premium reserves in the balance sheet according to a method proposed by the late Dr. August Zillmer. For this purpose all insured who are of the same age on the date of the balance sheet are summed up in groups. Section 56 of the law says that the correctness of the calculation of premium reserves is to be verified at the foot of the balance sheet by an expert.

III. Premium Reserves for Re-Insurance.

Regarding re-insurances, the law states that the companies must calculate the premium reserves also for the amounts given to them for re-insurance, according to the law. The re-insurance contracts made so far by the German life insurance companies generally contain the condition that the re-insurance company is to receive that part of the premium in accordance with the tariff, which belongs to each re-insured amount; as an offset to this it is obliged to bear a corresponding part of the commissions on the contract and collection.

In such contracts the re-insurance company had to calculate the premium reserves falling to its share according to its principles, and had to supervise them. In the future only such re-insurance contracts are allowed to be made which have in view solely a share of the re-insurance of the risk, and which on the other hand exclude a participation in the supervision of the premium reserves.

IV. Eliminating and Covering of Premium Reserves (Premium Reserve Funds).

The German Private Insurance Law states that the assets necessary for the covering of the premium reserves are to be separated from the other property of the insurance company and are to be supervised separately. In this way the law recognizes the principle that the amounts accumulated from the premiums of the insured and kept back for future insurance operations need special protection. The total of assets necessary for the covering of premium reserves form the "premium reserve funds."

The requirements of the law also deal with the kinds of security in which the premium reserve funds may consist. In fixing these regulations the lawmaker was guided by the correct judgment that the safe investment of the premium reserve funds is just as important for the fulfillment of the obligations to the insured as the correct calculation of the debit side of the premium reserves.

V. The Register of the Amount of the Premium Reserve Funds.

The amounts of the premium reserve funds are to be entered separately in a register; an exception is allowed only in the matter of a loan on policies. The purpose of this register, for which the Imperial Board of Control has prescribed special forms, is that the identity the individual securities belonging to the premium reserve funds can be seen at any time without the slightest doubt. Only by entry into this register the complete separation from the entire property of the company of the securities set apart for the covering of the premium reserves is complied with legally.

VI. The Privilege of the Insured in Case of Bankruptcy.

In case of bankruptcy of the insurance company the insured have a privileged claim on the premium reserve funds. The amount of the claim of the individual insured is fixed according to the premium reserve which at the time of the bankruptcy falls to his insurance.

Bankruptcy takes place when the insurance company is not able to assign longer to the premium reserve funds the covering required by its accounting regulations, and after the board of control comes to the conclusion that it is not to be expected that the company's condition will ever regain its normal level.

In the interest of the insured, however, in case a bettering of the company's conditions seems somehow possible, a bankruptcy is mostly preferred, as the insured would usually choose the continuance of the insurance rather than receive a practically small settlement.

VII. The Premium Reserves for the German Insured in Foreign Companies.

All regulations of the law regarding separation, supervision, and covering of the premium reserve funds refer also to the German insurances of foreign companies. The premium reserve funds for these insurances is to be secured in Germany in such a way that it can be disposed of only with the consent of the Board of Control.

For covering the premium reserve funds of the German insured, only German valuations, in accordance with section 59 of the law, are allowed.

VIII. The Difficulties of the Transition Period.

In order to comply with the regulation regarding separation and supervision of the premium reserve funds, the law grants a term of three years to the life insurance companies; a term of five years for meeting the requirements of section 59 as to covering.

The law fails to stipulate, however, within what period the system of accounts and manner of showing the premium reserve debits shall be brought into harmony with the legal requirements.

Section 100 says that only those companies whose accounts do not come up to the requirements of the board of control can be urged to a change of their system within a reasonable time. This last term is to be fixed usually so that too sharp an interference with the hitherto existing conditions of the company may be avoided.

Accordingly the corrected system will be introduced in place of the old order chiefly by degrees, while for a new enterprise the prompt introduction of methods free from objection must be requested. By action as careful and gradual as possible the interests of the insured can undoubtedly be best served in all cases, where now almost a hopeless state of affairs prevails.

As far as foreign companies are concerned, the attention of the German board of control must naturally be bestowed first of all upon the premium reserves of the German insured; but the conditions of the entire business of a foreign company operating in the German Empire can be of great influence over the decisions of the German board of control.

RÉSUMÉ.

L'IMPORTANCE DES FONDS DE RÉSERVE DE PRIMES, SELON LES LOIS DE L'ASSURANCE PRIVEE ALLEMANDE.

Par le Dr. Broecker.

Le rapport est divisé en huit sections qui sont brièvement résumées comme suit:

I. *Le sens technique des réserves de primes pour les différentes formes d'assurance.*

De manière à pouvoir évaluer à sa juste valeur le traitement des Réserves de Primes par la loi impériale allemande du 12 Mai 1901, qui régit les entreprises d'assurances privées, il est nécessaire de considérer tout d'abord l'importance des Réserves de Primes pour différentes formes d'assurance. L'importance diffère selon qu'il s'agit d'assurances de capitaux, de rentes viagères, d'assurances sur la vie ou d'assurances mixtes. Il faut considérer pour toutes ces formes d'assurance les Réserves de Primes dans le sens technique connue « L'Avoir » des assurés. Cela ne veut pas dire cependant que les assurés aient un droit légal absolu à cet « Avoir.» Au contraire, les réserves de primes des assurances individuelles forment la balance naturelle de la part de l'assuré individuel sur l'ensemble des obligations comptables de la compagnie.

La loi d'assurance privée allemande ne reconnaît que la créance légale d'un assuré individuellement à sa part des Réserves de Primes au cas où la Compagnie d'assurance ferait faillite. Le chiffre des réserves de primes mis de côté pour chaque assurance peut se trouver en se servant des principes fixes de comptabilité et de formules qu'on ne peut changer sans le consentement du conseil de contrôle selon la section 13 de la loi.

II. *Considération des réserves de primes dans le bilan annuel.*

Outre les principes du calcul des Réserves de Primes pour chaque assurance toute compagnie d'assurance sur la vie est tenue de préciser aussi ses principes pour la considération des Réserves de Primes, pour la totalité des assurances, dans son bilan de fin d'année. Les compagnies d'assurances allemandes ont adopté différentes méthodes pour cette considération. La plupart des compagnies supposent que les assurances commencent en moyenne au milieu de l'année (1er juillet) et que les primes sont dues au commencement de chaque année d'assurance, en avance pour l'année entière. C'est ce qui explique le contre-item de « delai accordé pour le paiement de primes se montant à » qui paraît à l'actif du bilan. Les compagnies allemandes estiment souvent sommairement les Réserves de Primes dans le solde de compte suivant une méthode proposée par feu le Dr. August Zillmer, et qui consiste à grouper dans ce but, en les additionnant, tous les assurés qui sont du même âge à la date du solde de compte. La section 56 de la loi dit que l'exactitude du calcul des Réserves de Primes au bas du bilan doit être vérifiée par un expert.

III. *Réserves de primes pour ré-assurance.*

Au sujet des Ré-Assurances, la loi dit que les compagnies doivent calculer les Réserves de Primes également pour les sommes qui leur sont versées pour répaiement suivant la loi, et aussi les tenir sauves et les administrer. Les contrats de ré-assurance que les compagnies allemandes d'assurance sur la vie ont passés jusqu'ici contiennent presque tous la condition que la compagnie qui ré-assure recevra la partie des primes qu'imposent le tarif qui s'applique à chaque compte ré-assuré, vu qu'elle est obligée de supporter une partie correspondante des commissions du contrat et d'encaissement. Dans les contrats la compagnie ré-assurante devait calculer les Réserves de Primes qui leur incombaient suivant leurs principes et les administrer. Dans l'avenir on ne permettra de faire que des contrats de ré-assurance qui auront exclusivement en vue une part de la ré-assurance du risque et qui excluent d'autre part une participation à l'administration des Réserves de Primes.

IV. *Élimination et garantie des réserves de primes.*

(Fonds de Réserve de Primes.)

La loi allemande d'assurance privée dit que l'actif nécessaire à garantir les Réserves de Primes doit être séparé des autres propriétés de la compagnies d'assurance et doit être administré séparément. La loi reconnaît ainsi le principe d'après lequel les sommes qui s'accumulent par le versement des primes des assurés, et mises de côté pour un besoin d'assurance futur, ont besoin d'une protection spéciale. La totalité de l'actif nécessaire à la garantie des Réserves de Primes forme « Les Fonds de Réserve de Primes.» Les règlements envisagent aussi la question du genre de valeur qui peuvent être affectées à la garantie des Fonds de Réserve. En édictant ces règlements le législateur a été guidé par l'idée juste qu'un placement tout à fait sauf des Fonds de Réserve est aussi important pour l'accomplissement des obligations prises envers les assurés, que le débit correct du côté passif des Réserves de Primes.

V. *Le registre des valeurs des fonds de réserve.*

Les valeurs des Fonds de Réserve de Primes doivent être entrées séparément dans un registre; il n'y a d'exception permise que lorsqu'il s'agit d'un prêt sur police. Le but de ce registre, pour lequel le Bureau impérial de contrôle exige des imprimés spéciaux, est qu'on peut voir d'un coup d'œil et sans le moindre doute l'identité des valeurs individuelles qui appartiennent aux fonds de réserve. Ce n'est que par l'entrée dans ce registre que l'élimination substantielle des valeurs destinées à la garantie des Réserves de Primes, du reste de la propriété de la compagnie, est légalement effectuée.

VI. *Le privilège des assurés en cas de faillite.*

Les assurés ont un recours privilégié sur les Fonds de Réserve de Primes en cas de faillite de la compagnie. La valeur de ce recours de l'assuré individuel est fixée suivant la Réserve de Primes qui advient à son assurance au moment de la faillite. La faillite se produit lorsque la compagnie d'assurance n'est plus en état d'assigner au fonds de réserve les valeurs fixés par ses principes de comptabilité et après que le conseil de contrôle a conclu qu'il n'y a pas lieu d'espérer que la condition de la compagnie remontera jamais à son niveau normal. Dans l'intérêt des assurés cependant, dans le cas où les conditions de la compagnie semblent susceptibles de s'améliorer, il vaut mieux éviter la faillite, parceque les assurés préfèrent généralement que l'assurance continue plutôt que de recevoir un dividende proportionnel généralement petit.

VII. *Les réserves de primes des assurés allemands dans les compagnies étrangères.*

Toutes les prévisions de la loi touchant la séparation, la surveillance et la protection des Fonds de Réserve s'appliquent aussi aux assurances allemandes faites par des compagnies étrangères. Les Fonds de Réserve pour ces assurances indigènes doivent être placés de manière à ce qu'on ne puisse en disposer sans le consentement du conseil de contrôle. Suivant la section 59 de la loi on ne peut employer que des valeurs allemandes pour garantir le Fonds de Réserve des assurés allemands.

VIII. *Difficultés de la période transitoire.*

La loi accorde une période de trois ans aux compagnies d'assurance sur la vie pour se conformer aux règlements concernant la séparation et la surveillance des Fonds de Réserve; elle leur accorde une période de cinq ans pour se conformer aux stipulations de l'article 59. La loi ne stipule pas cependant la durée de la période pendant laquelle les principes de comptabilité et les principes pour évaluer la dette des Fonds de Réserve doivent être fixés. L'article 100 dit seulement que ces compagnies, dont les principes de comptabilité ne semblent pas conformes aux demandes du conseil, doivent être invitées à changer leurs principes en un laps de temps raisonnable. Ce laps de temps sera généralement fixé de manière à éviter une interférence trop vive dans les conditions déjà existantes de la compagnie visée. Par conséquent les principes révisés ne seront introduits que graduellement pour la plupart, à la place des anciennes conditions; mais pour une compagnie nouvelle l'introduction de principes sains sera requise aussitôt que possible. C'est par une action aussi éclairée et graduelle que possible qu'on pourra le mieux sans aucun doute servir les intérêts des assurés, dans les cas où on se heurte à des conditions presque sans espoir.

En ce qui concerne les compagnies étrangères, c'est la situation du Fonds de Réserve des Primes des assurés allemands qui attire tout d'abord l'attention du conseil de contrôle, mais la condition des affaires globales des compagnies étrangères, qui font des affaires en Allemagne, peut avoir une grande influence sur la décision de ce conseil allemand de contrôle.

DIE ALLGEMEINEN TECHNISCHEN GRUNDSÄTZE, WELCHE BEI DER STAATLICHEN KONTROLLE DER LEBENSVERSICHERUNGS-ANSTALTEN IM HINBLICK AUF DIE INTERNATIONALEN INTERESSEN DES VERSICHERUNGSWESENS ZU BEACHTEN SIND.

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Während noch vor wenigen Jahrzehnten die Regierungen den privaten Lebensversicherungsanstalten kein Interesse entgegenbrachten, soweit ein solches nicht durch die Frage der Besteuerung hervorgerufen wurde, sehen wir, wie namentlich in den letztverflossenen Jahren ein Staat nach dem anderen das Prinzip des Gehenlassens auf diesem Gebiete aufgiebt und es als eine seiner Aufgaben betrachtet, den Betrieb der Lebensversicherungs-Gesellschaften zu kontrollieren.

Es giebt heute in der Tat keinen grösseren Kulturstaat mehr, der die Beaufsichtigung des Lebensversicherungswesens auf dem Wege des Gesetzes oder der Verordnung noch nicht geregelt hätte oder wenigstens der Frage nicht bereits ernstlich näher getreten wäre. Aber wie verschieden sind die Grundsätze, nach denen die Staatsaufsicht gehandhabt wird! Die eine Regierung begnügt sich, die Gesellschaften gleichmässig zu gewissen Angaben für die Öffentlichkeit zu verpflichten, die andere stellt sich die Aufgabe, jede einzelne geschäftliche Massregel zu überwachen. Und wie mannigfaltige Abstufungen existieren zwischen diesen beiden Extremen. Greifen wir eine spezielle Frage heraus, z. B. die der Einstellung der Prämienreserve in die Bilanz, so finden wir Staaten, in denen die Wahl der Grundlagen und der Methode völlig frei ist, neben anderen, die eine bestimmte Sterblichkeitstafel und einen Maximal-Zinsfuss vorschreiben, oder die nur die Berechnung mit der reinen Nettoprämie zulassen oder bis zu einer gewissen Grenze die Berücksichtigung der ersten Kosten gestatten.

Zunächst ist es nun freilich Sache der einzelnen Gesellschaften, sich auf die Vorschriften ihres Landes einzurichten, oder, soweit diese einer Verbesserung bedürfen, gemeinsam mit den andern in dem gleichen Staate ansässigen Gesellschaften die erforderliche Einwirkung auf die gesetzgebenden Gewalten auszuüben. Dagegen scheint für eine internationale Vereinigung von Versicherungstechnikern mit der theoretischen Kenntnisnahme der einzelnen Systeme das Interesse erschöpft zu sein, und ein Versuch, die Gesetzgebung der verschiedenen Länder in dieser Hinsicht zu beeinflussen, ausserhalb des Rahmens ihrer Tätigkeit zu liegen.

Jedoch auch für die Versicherungswelt gilt das geflügelte Wort: „sie steht unter dem Zeichen des Verkehrs.“ Sehr viele Lebensversicherungsgesellschaften dehnen ihre Wirksamkeit über die Grenzen ihres Vaterlandes aus. Zunächst sind diejenigen, welche in kleinen Staaten ihren Sitz haben, hierzu sogar gezwungen. Denn das Prinzip der Versicherung verlangt, dass zum Ausgleich des Risikos die Zahl der Versicherten eine möglichst grosse sei, ein Ziel, das natürlich einer Gesell-

schaft in einem Lande mit geringer Bevölkerung schwerer erreichbar ist, als einer andern, die auf einem grösseren Gebiete arbeitet. Aber auch solche Länder, die hinsichtlich ihrer Bevölkerungsziffer einer Lebensversicherungsanstalt ein genügendes Fundament abgeben könnten, vermögen das moderne Expansionsbedürfnis nicht zu befriedigen, und so sehen wir denn einzelne Riesengesellschaften ihre Arme bis über den ganzen Erdball ausstrecken. Unter diesen Umständen gewinnt die Frage nach allgemeinen Prinzipien der Staatsaufsicht an Interesse.

Ehe man sich mit dem Problem der Behandlung der ausländischen Gesellschaften seitens der Staatsaufsicht befasst, muss man sich erst darüber klar sein, ob denn überhaupt die Anwesenheit fremder Gesellschaften im Lande wünschenswert ist. Sehr oft ist diese Frage von dem engen Gesichtspunkte der Konkurrenz beantwortet worden. Überall dort, wo die heimische Lebensversicherung sich noch in einem schwach entwickelten Zustande befindet, wird von ihr der Ruf nach Fernhaltung oder Erschwerung des ausländischen Wettbewerbes durch Mittel der Gesetzgebung erhoben. Unsere deutschen Lebensversicherungs-Anstalten sind längst derartig erstarkt, dass sie eine solche „Schutzzollpolitik" ablehnen, weil sie ihrer nicht bedürfen. Ein eklatanter Beweis hierfür ist das Verhalten des „Verbandes deutscher Lebensversicherungs-Gesellschaften" gegenüber dem ersten Entwurf des Reichsgesetzes über die privaten Versicherungs-Unternehmungen. Dieser sah bekanntlich vor, dass die ausländischen Anstalten die Hälfte des Prämienreserve-Fonds in verbrieften Forderungen gegen das Reich oder einen Bundesstaat anzulegen hätten. In einer „Erklärung" des „Verbandes," die eine eingehende Kritik des Entwurfs enthielt, wurde diese Forderung, welche der bisher in Preussen üblichen Vorschrift entsprach, energisch bekämpft und an deren Stelle eine abgeänderte Bestimmung vorgeschlagen, welche den ausländischen Gesellschaften eine gleiche Behandlung wie den inländischen zubilligte und schliesslich auch in die endgiltige Fassung des Gesetzes (mit einer kleinen Abweichung) überging. Für diese unparteiische Haltung der deutschen Gesellschaften war jedenfalls der Umstand mitbestimmend, dass eine grosse Zahl von ihnen in ausserdeutschen Ländern Geschäfte treibt, wo ihnen naturgemäss daran gelegen ist, unter gleichen Bedingungen wie die betreffenden inländischen Anstalten arbeiten zu dürfen. Diese Möglichkeit würde aber zum Teil in Frage gestellt, wenn infolge der Schwierigkeiten, die die deutsche Gesetzgebung den fremden Gesellschaften bereitete, im Auslande analoge Gegenmassregeln hervorgerufen würden.

Natürlich schliesst das Bestreben, den auswärtigen Gesellschaften die Gelegenheit zum Wettbewerb in Deutschland zu lassen, keineswegs aus, dass von Seiten deutscher Gesellschaften oder von deren Organen ein scharfer Kampf gegen manche ausländische Gesellschaft geführt wird, aber doch immer nur mit solchen Mitteln, wie sie auch die inländischen Gesellschaften in der Konkurrenz mit einander gebrauchen.

Scheint die allgemeine Anschauung also dahin zu gehen, dass es eines Kulturstaates nicht würdig sei, nur zum Zwecke der Fernhaltung der fremden Gesellschaften für dieselben besondere erschwerende Bestimmungen zu treffen, so verlangt andererseits die Billigkeit, dass nicht etwa durch eine allzu schematische Anwendung des Prinzips der gleichen Behandlung der in erster Linie beabsichtigte Schutz der Versicherten beeinträchtigt wird oder gar eine tatsächliche Begünstigung gegenüber den inländischen Gesellschaften erfolgt. Denn aus der Natur der Sache ergeben sich einige Schwierigkeiten, mit denen die staatliche Aufsicht gegenüber den ausländischen Gesellschaften sich abfinden muss.

Zunächst ist es ganz unmöglich, eine Gesellschaft, die ihren Sitz nicht im Inlande hat, so eingehend zu kontrollieren, wie eine inländische. So werden in der Regel staatsrechtliche Bedenken daran hindern, die von einer ausländischen Gesellschaft veröffentlichte Bilanz durch Vergleich mit den am Domizil befindlichen Büchern nachzuprüfen. Die im Auslande wohnenden Leiter der Anstalt werden nicht, wie diejenigen einheimischer Gesellschaften, die der Aufsichtsbehörde gemachten Angaben persönlich zu vertreten haben, da die Wirksamkeit der Gesetze jenseits der Grenzen des Inlandes natürlich illusorisch ist. Auch die Vermögensbestandteile der Gesellschaft (soweit sie nicht im Inlande belegen sind) hinsichtlich ihrer Güte zu beurteilen, würde für die einheimische Aufsichtsbehörde vielfach mit unüberwindlichen Schwierigkeiten verknüpft sein. Ergibt sich so die Unmöglichkeit, das ganze Geschäft einer ausländischen Gesellschaft gründlich zu beaufsichtigen, so muss sich die staatliche Kontrolle dabei bescheiden, in der Hauptsache das im Inlande abgeschlossene Geschäft zu überwachen. In der Regel wird aber der inländische Zweig nur ein kleiner Teil des ganzen Geschäftes sein, der natürlich in hohem Grade von den Erfolgen in den übrigen Arbeitsgebieten der Anstalt beeinflusst wird. Es ist daher der Fall denkbar, dass die inländische Abteilung einer ausländischen Gesellschaft nach soliden Grundsätzen verwaltet wird und mit geschäftlichem Erfolge arbeitet, zu gleicher Zeit aber im Heimatlande einschneidende geschäftliche Massnahmen ergriffen werden, die die finanzielle Situation der Anstalt dauernd beeinträchtigen, wodurch, da die Gesellschaft ja ein einziger Organismus ist, natürlich auch den einheimischen Versicherten Verluste erwachsen. Umgekehrt kann der inländische Zweig einer ausländischen Gesellschaft namentlich im Anfange der Tätigkeit derselben im Inlande, für sich allein betrachtet, wegen der hohen Unkosten, die die Leitung — vielleicht infolge einiger Missgriffe bei Auswahl der Vertreter — aufwenden musste, ein recht ungünstiges Bild abgeben, und doch können die einheimischen Versicherten bei der Anstalt, wenn sie im ganzen solide verwaltet wird, infolge der günstigen Ergebnisse des Gesamtgeschäftes recht grosse Vorteile haben.

Hier mag eingeschaltet werden, dass natürlich das Vertrauen zu einer ausländischen Gesellschaft ganz bedeutend gehoben ist, wenn dieselbe schon in ihrem Heimatlande einer wirksamen Staatsaufsicht untersteht, so dass dann ein grosser Teil der oben geäusserten Bedenken in Wegfall kommt. Aber gerade eine aktive Kontrolle hängt nicht allein von den papiernen Vorschriften der Gesetze und Verordnungen ab, sondern auch, und zwar in sehr hohem Grade, von der Tüchtigkeit der Beamten, die die Aufsicht ausführen, von ihren Fähigkeiten und ihrem redlichen Bestreben, die Verhältnisse der Gesellschaften zu erforschen. Aus diesem Grunde ist es wohl nicht zulässig, die heimatliche Staatsaufsicht ausländischer Gesellschaften als genügenden Ersatz für die praktisch nicht auf das Gesamtgeschäft ausdehnbare Kontrolle der inländischen Behörde anzusehen.

Die Mängel, welche nach dem Obigen der Aufsicht über ausländische Gesellschaften naturgemäss immer anhaften, machen gewisse Kautelen notwendig, welche, äusserlich betrachtet, eine Erschwerung des Geschäftsbetriebes ausländischer Gesellschaften bedeuten. Natürlich dürfen diese besonderen Anforderungen nicht den berechtigten Ansprüchen der Gesellschaften und ihrer Versicherten, auf die ja in letzter Linie die dadurch hervorgerufenen Unkosten abgewälzt würden, zuwiderlaufen.

Es ist nun die Frage, ob sich allgemeine Grundsätze festlegen lassen,

deren Beachtung bei Aufstellung der Spezial-Vorschriften für die ausländischen Gesellschaften wünschenswert ist.

Als ein solches Prinzip ist vor Allem hervorgehoben worden die *unverletzliche Einheit* einer Versicherungs-Anstalt (Herr Adan auf dem 2. internationalen Kongress, siehe Transactions, p. 222). In der That betrifft diese den Grundgedanken der Versicherung überhaupt. Letztere kann nur verwirklicht werden, wenn eine möglichst grosse Zahl versicherter Personen (oder Sachen) zusammengefasst wird, weil erst dann das „Gesetz der grossen Zahl" gilt, d. h. eine annähernde Übereinstimmung mit den der Prämienberechnung zu Grunde liegenden Wahrscheinlichkeits-Quotienten erzielt wird. Wollte man den Versicherungskörper in einzelne Teile zerlegen, und jeden für sich behandeln, so gäbe man den erreichten Vorteil wieder auf, da in den einzelnen Abteilungen die Schwankungen in der Sterblichkeit, Invalidität oder dergl. sich natürlich bei weitem weniger gut gegenseitig ausgleichen.

Eng damit zusammen hängt ein zweites Prinzip, das der *Gleichbehandlung der Versicherten* einer Gesellschaft. Dies bedeutet, dass es nicht zulässig ist, einer Gruppe von Versicherten besondere Vorteile einzuräumen, für welche diese kein Äquivalent leisten. Die Berechtigung dieses Prinzips ergibt sich von selbst aus dem Zwecke der Versicherungs-Gesellschaft, durch die eine möglichst gleichmässige Verteilung der Lasten des Risikos, nur abgestuft nach den verschiedenen Graden desselben, herbeigeführt werden soll. Jeder Fachmann weiss allerdings, wie schwer eine gerechte Verteilung der Lasten der Versicherung auf die Versicherten in der Praxis durchzuführen ist. Man denke nur daran, wie wenig befriedigend, oder vielmehr wie willkürlich die Regeln für Bemessung der Prämienzuschläge und wie schwankend die Ansichten über die gerechteste Art der Dividendenverteilung heute noch sind. Immerhin verlangt schon die Billigkeit, dass dieses zweite Prinzip wenigstens als Ziel im Auge behalten werde.

Wir wollen im Folgenden prüfen, wie weit das deutsche „Gesetz über die privaten Versicherungsunternehmungen" vom 12. Mai 1901 den beiden genannten Prinzipien gerecht wird.

Eine schwer wiegende Bestimmung des Gesetzes sind die weitgehenden Befugnisse, welche dem Vertreter einer ausländischen Gesellschaft für das Deutsche Reich von der Hauptleitung derselben eingeräumt werden müssen. Die betreffenden Paragraphen lauten folgendermassen:

> § 86, 3. „Die Erlaubnis darf nur erteilt werden, wenn ..... die Unternehmung sich verpflichtet, innerhalb des Reichsgebietes eine Niederlassung zu unterhalten und für das Inland einen Hauptbevollmächtigten zu bestellen, der innerhalb des Reichsgebietes seinen Wohnsitz hat. Der Hauptbevollmächtigte gilt als ermächtigt, die Unternehmung zu vertreten, insbesondere die Versicherungsverträge mit Versicherungsunternehmern im Inland und über inländische Grundstücke mit verbindlicher Kraft abzuschliessen, auch alle Ladungen und Verfügungen für die Unternehmung in Empfang zu nehmen.
>
> § 87. Zum Geschäftsbetrieb im Inland zugelassene Versicherungsunternehmungen dürfen die Versicherungsverträge mit Versicherungsnehmern, die im Inlande ihren gewöhnlichen Aufenthalt haben, sowie Versicherungsverträge über inländische Grundstücke nur durch Bevollmächtigte abschliessen, die im Inland ihren Wohnsitz haben.
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> § 88. Die den Inhabern oder Vertretern einer inländischen Unternehmung nach diesem Gesetze obliegenden Pflichten hat der

für das Reichsgebiet bestellte Hauptbevollmächtigte einer ausländischen Unternehmung zu erfüllen."

Die Bestellung eines „Hauptbevollmächtigten" an sich ist eine selbstverständliche Forderung, deren Erfüllung den Gesellschaften schon deswegen keine besonderen Schwierigkeiten machen wird, weil sie für das weite Gebiet des deutschen Reiches doch einen Vertreter brauchen, der die geschäftsmässige Vermittelung neuer Versicherungen in Deutschland besorgt, beziehungsweise den dazu nötigen Apparat von Beamten und Agenten dirigiert. Jedoch die weitgehenden Vollmachten, die diesem Hauptvertreter erteilt werden müssen, sind es, die bei den Kritikern Anstoss erregen. „Eine solche Dezentralisation ist durchaus den Versicherungsgrundlagen und daher auch der Solidität des Betriebes zuwider," heisst es z. B. in einem Aufsatz von F. Trefzer im Bulletin No. 6, p. 119, des „Comité permanent des congrès internationaux d'actuaires." In der That muss zugegeben werden, dass hierdurch die Einheit in der Leitung der Gesellschaft sehr beeinträchtigt wird. Andererseits verlangt aber der Geist des deutschen Gesetzes, dass bestimmte Personen für die Thätigkeit der Gesellschaft verantwortlich einstehen (vergl. z. B. die Strafvorschriften, § 105 ff.). Da aber im Ernstfalle die im Auslande wohnhaften Vorstandsmitglieder von den Gerichten nicht erreichbar wären, ergab sich die Notwendigkeit, einen verantwortlichen Repräsentanten im Inlande zu haben. Eine speziellere Begründung der einzelnen Befugnisse, die dem Hauptbevollmächtigten zugestanden werden müssen, finden wir in den von dem Berichterstatter der Reichstagskommission für das Gesetz, dem Abgeordneten *Zehnter,* herausgegebenen Erläuterungen (Das Reichsgesetz über die privaten Versicherungsunternehmungen, Seite 170). Daselbst heisst es:

„Der Hauptbevollmächtigte hat hiernach eine gesetzliche Vollmacht, die von der Unternehmung nach aussen nicht beschränkt werden kann und vermöge deren der Hauptbevollmächtigte ermächtigt ist, die Unternehmung in jedweder Beziehung zu vertreten, auch insoweit es sich nicht um Rechtsakte handelt, die das Versicherungsgeschäft betreffen. Durch die gesetzliche Feststellung der Vollmacht sollen die mit dem Hauptbevollmächtigten in Rechtsverkehr tretenden Personen der unter Umständen schwierigen Prüfung überhoben werden, ob eine andernfalls für den Hauptbevollmächtigten notwendige Vollmacht in rechtsgiltiger Form ausgestellt und ob die Vollmachtgeber zu deren Erteilung befugt waren. Unbeschränkt aber wurde der Hauptbevollmächtigte zur Vertretung der Unternehmung im Gesetz ermächtigt, weil, falls man etwa die Vertretungsbefugnis auf das Versicherungsgeschäft hätte beschränken wollen, im einzelnen Falle Zweifel hätten darüber entstehen können, ob ein Rechtsakt das Versicherungsgeschäft betrifft oder nicht."

Für die Lebensversicherungsanstalten ist besonders das Recht des Bevollmächtigten, selbst Versicherungen mit rechtsverbindlicher Kraft abschliessen zu dürfen, von weittragender Bedeutung, da eine wenig vorsichtige Auswahl der Risiken der Gesellschaft grossen Schaden zufügen kann. Vielleicht wäre es besser gewesen, auch hier eine analoge Beschränkung einzufügen, wie sie im § 115, Absatz 2, hinsichtlich der — auch von inländischen Gesellschaften — zu bestellenden Hauptbevollmächtigten für einzelne Bundesstaaten vorgesehen ist, nämlich:

„Zum Abschlusse der Lebensversicherungsverträge ist jedoch die vorausgegangene Genehmigung der Zentralleitung der Unternehmung erforderlich, die in dem Vertrage zum Ausdrucke gebracht werden muss."

Aber obgleich ein solcher Passus hier fehlt, hat die Anstalt doch die

Mittel, sich gegen unvorsichtige Schritte des Bevollmächtigten zu schützen; es bleibt ihr nämlich (nach Zehnters Kommentar Seite 171) unbenommen, für das interne Verhältnis zwischen ihr und dem Hauptbevollmächtigten diesen an Instruktionen zu binden und sich auch die vorgängige Genehmigung aller oder gewisser Geschäfte vor deren Abschluss vorzubehalten."

Von einschneidender Bedeutung für die ausländischen Anstalten sind die Bestimmungen über die *Prämienreserve*. Dem schon oben Gesagten entspricht es, dass davon abgesehen wird, bezüglich des ganzen Geschäfts die richtige Berechnung und gesetzmässige Verwaltung der Prämienreserve zu überwachen. Alle darauf hinzielenden Vorschriften des Gesetzes finden nur hinsichtlich der im Inland abgeschlossenen Versicherungen Anwendung.

„Der Prämienreservefonds für diese Versicherungen," heisst es nun im § 90, Absatz 2 des Gesetzes vom 12. Mai 1901, „ist nach näherer Bestimmung des Aufsichtsamts für Privatversicherung in der Weise sicher zu stellen, dass nur mit Genehmigung des letzteren darüber verfügt werden kann." Bereits im Anfange dieses Referats wurde erwähnt, dass im ursprünglichen Entwurf die Anlegung der Hälfte des inländischen Prämienreservefonds in Staatspapieren des deutschen Reiches oder der Bundesstaaten verlangt war. Diese harte Bestimmung, welche bei den niedrigen Zinsergebnissen derartiger Papiere eine dauernde finanzielle Benachteiligung — namentlich auch gegenüber den inländischen Anstalten — nach sich gezogen hätte, wurde in letzter Stunde, nämlich erst bei der zweiten Lesung der Gesetzesvorlage, gestrichen und durch die oben mitgeteilte Fassung ersetzt. Auch gegen diese werden aber von kritischer Seite Bedenken geäussert, da die Festlegung eines Teiles der Prämienreserve einen Verstoss gegen das Prinzip der Einheit des Versicherungskörpers und der Gleichbehandlung der Versicherten enthalte. Es wird darauf hingewiesen, dass, wenn diese Bestimmung von anderen Staaten nachgeahmt würde, sich allmälig ein Zustand herausbilden würde, dass das ganze Geschäft in so viele Teile zerstückelt würde, als in verschiedenen Ländern gearbeitet würde. Meines Erachtens würde aber ein solcher Zustand keineswegs eine Gefahr für die Gesellschaft bilden. Mag die Reserve in noch so viele Teile zerlegt werden, ja, wenn selbst für jede einzelne Police die Reserve besonders festgelegt wird, das Prinzip der Versicherung wird dann doch nicht verletzt, denn der Ausgleich der Risiken vollzieht sich ja nicht innerhalb der Reserve, die — wenigstens was die eigentliche Lebensversicherung anbelangt — nur ein Spargutbaben ist, sondern innerhalb des nicht zur Reservebildung und nicht zur Bestreitung der Verwaltungskosten rechnungsmässig verwendbaren Teils der Gesamtprämien. Diese sogenannten Risikoprämien bilden in der Gesellschaft ein unteilbares Ganzes, da kein Teil von ihnen festgelegt werden kann. Das Gesetz der grossen Zahl kann also ungestört wirken. Überdies fallen auch die durch Aufgabe der Versicherung frei werdenden Teile der Prämienreserve dem allgemeinen Vermögen bezw. dem Jahresgewinn zu.

Der Zweck der Fixierung der inländischen Reserve ist offenbar ein erhöhter Schutz der inländischen Versicherten zum Ausgleich dafür, dass aus schon angeführten Gründen die Beaufsichtigung des Gesamtgeschäftes nicht so gründlich geschehen kann, wie es bei den inländischen Anstalten möglich ist. Durch diese Massregel wird den inländischen Versicherten für den Fall des Zusammenbruches der ausländischen Gesellschaft wenigstens ihre Prämienreserve unter allen Umständen gesichert, wodurch z. B. die gleichzeitige Übernahme und Fortführung aller inländischen

Versicherungen durch eine solide andere Gesellschaft ermöglicht wird. Allerdings liegt hierin eine Begünstigung der inländischen Versicherten, die aber nur deswegen eintritt, weil es unmöglich ist, die Verwaltung der Prämienreserve für *alle* Versicherten zu überwachen, wie es für die inländischen Gesellschaften geschieht.

In engem Zusammenhange hiermit steht die nicht im Gesetz selbst, sondern in den später herausgekommenen „Vorschriften über die Rechnungslegung der vom Kaiserlichen Aufsichtsamt für Privatversicherung beaufsichtigten grösseren Lebensversicherungs-Unternehmungen" enthaltene Verfügung:

„Ausländische, zum inländischen Geschäftsbetriebe zugelassene Lebensversicherungs-Unternehmungen haben für ihr gesamtes und für das inländische Geschäft gesondert Rechnung zu legen." Diese Forderung der Sonderbilanz ist namentlich von *Adan* in seinem Referat auf dem 2. internationalen Aktuar-Kongress bekämpft und als absurd hingestellt worden (Transactions, p. 237). Der Zweck dieser Bestimmung ist offenbar nur der, die Unternehmung zu veranlassen, diejenigen Aktiv- und Passiv-Werte anzugeben, welche den inländischen Versicherungen entsprechen. Die hierbei resultierenden Spezial-Überschüsse sind natürlich von geringer Bedeutung, weil zu ihrer Feststellung in der Regel einige willkürliche Abschätzungen notwendig sind; immerhin sind sie geeignet, ein annähernd zutreffendes Bild von den geschäftlichen Erfolgen in einem Lande zu geben. Aber die Vorschrift verlangt auch gar nicht, dass diese so gebildeten besonderen Überschüsse etwa der Dividenden-Verteilung zu Grunde gelegt werden. Wäre dies der Fall, dann allerdings ginge für die Versicherten des betreffenden Landes der mit der Zugehörigkeit zu einer grossen Gesellschaft verbundene Vorteil völlig verloren und die Kritik Adans wäre am Platze. So aber schiesst diese weit über das Ziel hinaus. Was speziell die Vorschrift der deutschen Behörde anbelangt, so verursacht die Erfüllung derselben nur eine geringe besondere Mühe, da wegen der gesetzlichen Bestimmungen über die Festlegung der inländischen Prämien-Reserve und die Führung des ganzen inländischen Geschäfts durch den Hauptbevollmächtigten die erforderlichen Einnahme- und Ausgabe-Posten, sowie die nötigen Daten der Aktiva und Passiva schon zum grössten Teil bekannt sein müssen. Es sind dies ja auch diejenigen Werte, deren Nachprüfung der Aufsichtsbehörde möglich ist, während sie auf die Kontrolle der entsprechenden Zahlen für das Gesamtgeschäft grösstenteils verzichten muss.

Wenn wir unsere Darlegungen zusammenfassen, so können wir sagen:

In dem deutschen Gesetze über die privaten Versicherungsunternehmungen sind in den die ausländischen Anstalten behandelnden Spezialbestimmungen die Prinzipien der Einheit des Versicherungskörpers und der Gleichbehandlung der Versicherten nach Möglichkeit gewahrt, soweit der Hauptzweck der Staatsaufsicht, der Schutz der Versicherten, welcher sich hier aus praktischen Gründen nur auf die inländischen, aber nicht auf die im Auslande wohnenden Versicherten erstrecken kann, dies zulässt.

Es erübrigt noch, ein Wort über die Frage der Kautionsstellung zu verlieren. Im deutschen Gesetze ist ebenfalls die Möglichkeit offen gelassen, die Zulassung einer Gesellschaft, sei sie in- oder ausländisch, von der Erlegung einer angemessenen Sicherheit abhängig zu machen (§ 7, zweiter Absatz); die Höhe derselben ist ebenfalls der Behörde anheimgestellt. Wie sich die Praxis des Aufsichtsamts in dieser Hinsicht gestalten wird, muss erst die Zukunft zeigen. Wir können uns hier darauf beschränken, das bereits auf früheren Kongressen, so von Harding, Le-

jeune, ausgesprochene Postulat zu unterstützen: „Die Kautionen dürfen nicht einen mässigen Betrag überschreiten, der genügt, um den Beweis eines im Inlande vorhandenen Vermögens zu erbringen. Sie dürfen namentlich nicht in der Nebenabsicht gefordert werden, den staatlichen Finanzen aufzuhelfen."

ABSTRACT.

GENERAL TECHNICAL PRINCIPLES WHICH ARE TO BE CONSIDERED IN GOVERNMENT CONTROL OF LIFE INSURANCE COMPANIES HAVING REGARD TO INTERNATIONAL INTERESTS.

By R. Schoenwiese.

The different systems of Government inspection, which first of all concerns only insurance experts in countries where they are in force, with the extension of many companies into several countries also affects international interests in a marked degree.

The efforts to keep out foreign companies by legislation in order to assist and further domestic companies are objectionable. The German companies take the attitude that conditions as favorable as those for domestic companies are to be granted by law to foreign companies. Naturally, however, special difficulties are connected with governmental inspection of foreign companies, as the Government can certainly only control their business done in its jurisdiction to the same extent as it can supervise the entire business of the domestic companies.

For this reason special methods are essential for the supervision of foreign companies.

With regard to such, two principles are to be observed:

1. The inviolable unity of organism of an insurance company.
2. The equal treatment of all insured in the same company.

The German law of May 12th, 1901, regarding supervision of private insurance companies is accordingly criticised from these two standpoints. Especially the authority of the principal agents it dealt with (§86, section 3, §87 and 88 of the law) as well as the special guarantee of the premium-reserve-funds for domestic insurances, which are required as per §90, section 2, and which cannot be disposed of without approval of the supervising officials. Furthermore the directions for a special account of the domestic business (special balance sheet) are criticised. It is proved that in all these directions the above mentioned principles are considered as much as possible, so far as the main object of Governmental supervision, the protection of the insured, particularly of the domestic insured, allows it.

Finally the question of furnishing bonds is regarded. These are not allowed to exceed a moderate amount, and also not allowed to be required with the intention of giving a financial profit to the Government.

RÉSUMÉ.

PRINCIPES TECHNIQUES GÉNÉRAUX QU'IL FAUT CONSIDÉRER DANS LE CONTRÔLE GOUVERNEMENTAL DES COMPAGNIES D'ASSURANCES SUR LA VIE, AU POINT DE VUE DES INTÉRÊTS INTERNATIONAUX DES ASSURANCES.

Par R. Schoenwiese.

Les différents systèmes d'inspection gouvernementale, qui de prime abord ne touchent que la technique de l'assurance dans les pays où elle est contractée, sont arrivés, grâce à l'extension de beaucoup de compagnies dans des pays différents, à atteindre au plus haut degré les intérêts internationaux.

Les efforts faits par la législation pour éliminer les compagnies étrangères dans le but de protéger et de favoriser les compagnies indigènes sont à con-

damner. Les compagnies allemandes admettent le point de vue que les mêmes conditions d'existence qui sont accordées par la loi aux compagnies indigènes devraient être également aux compagnies étrangères. Il est cependant naturel que le Gouvernement rencontre des difficultés spéciales dans la surveillance des compagnies étrangères, car cette surveillance est naturellement limitée aux affaires faites dans le pays tandis qu'il peut surveiller l'ensemble des affaires des compagnies indigènes.

C'est pourquoi il est indispensable d'avoir des règles particulières pour la surveillance des compagnies étrangères.

Mais il faut observer les deux principes suivants dans l'établissement de ces règles particulières:

1. l'unité inviolable de l'organisme d'une compagnie d'assurance;
2. l'égalité de traitement de tous les assurés par une même compagnie.

La loi allemande du 12 mai 1901 au sujet de la surveillance des compagnies prouvées d'assurance, est en conséquence examinée en vue de ces deux principes. L'auteur étudie surtout la compétence des principaux fonctionnaires (§ 86, section 3, § 87 et § 88 de la loi) ainsi que les garanties spéciales des primes, de la réserve, des fonds pour les assurances indigènes qui sont requis par le paragraphe 90 des sections 2 et 3 et dont on ne peut disposer sans l'approbation des Fonctionnaires étranges de la surveillance. Il examine également les règlements pour un compte spécial des affaires indigènes (compte courant spécial). Somme toute dans tous ces règlements on tient compte des principes mentionnés ci-dessus autant que le permet l'objet principal de la surveillance gouvernementale qui est de protéger l'assuré et surtout l'assuré indigène d'une manière pratique.

L'auteur aborde enfin la question des cautions. Elles ne devraient pas dépasser une certaine somme de valeur modérée et surtout ne devraient pas être requises dans le but de fournir un profit financier au Gouvernement.

DIE TECHNISCHEN GRUNDSATZE, WELCHE BEI DER STAATLICHEN KONTROLLE ZU BEOBACHTEN SIND.

Von F. Trefzer,

Aktuar der Eidg. Versicherungsamt es in Bern.

Aus den im Vorjahre publizierten Verhandlungen des dritten Kongresses geht hervor, dass ein solches Thema, wie es durch die Frage 14 präzisiert wird, vom Kongresse selbst nicht vorgeschlagen worden ist. Offenbar ist der von mir in der vorletzten Sitzung gestellte Antrag gemeint: es möge der nächste internationale Kongress diejenigen technischen Normen feststellen, deren Beobachtung seitens der Staatsaufsicht — im Hinblick auf die internationalen Interessen des Versicherungswesens — wünschbar wäre. Ein Beschluss, diesem Antrage Folge zu geben oder ihn abzulehnen, wurde nicht gefasst, der Antragsteller aber eingeladen, das Thema im Bulletin des Comité permanent zu behandeln, was seither auch geschehen ist. Da nunmehr gleichwohl das Organisationskomitee des vierten Kongresses die Aufnahme des Themas in das vorläufige Programm veranlasste, ist es mir angenehme Pflicht, ihm dafür zu danken, und gleichzeitig die Hoffnung auszusprechen, dass die Verhandlungen die schon am ersten Kongresse aufgeworfene Frage fördern helfen. Denn es ist nun Gelegenheit gegeben, die Stellung der Gesetzgebung zum internationalen Versicherungswesen zwischen den Vertretern der Technik offen zu behandeln und sowohl vom Standpunkte der Gesellschaften als von demjenigen des Staates zu beleuchten.

Zunächst bedarf der knappe Wortlaut der Frage 14 der Erläuterung, da er missverstanden werden kann. Dieser Wortlaut geht über das, was mein Antrag bezweckte, hinaus. Nicht die technischen Grundsätze bei der Staatlichen Kontrolle sollen besprochen werden. Es handelt sich nicht etwa darum, festzustellen, welchen Grundsätzen die Aufsichtsbehörden bei der Beurteilung der technischen Grundlagen, der Berechnung von Prämie und Reserve folgen sollen, oder technische Vorschriften über die Kontrolle überhaupt zu diskutieren, sondern nur um das, was im Hinblick auf den *internationalen Charakter* des Versicherungswesens von der Aufsicht berücksichtigt werden sollte. Allerdings beziehen wir uns lediglich auf die aktive, durch ständige Behörden ausgeübte Kontrolle, aber nur sofern und soweit diese zwischen der Behandlung in- und ausländischer Gesellschaften schwerwiegende Unterscheidungen getroffen hat. Unsere Frage ist somit vorwiegend praktischer Natur. Sie sucht auf die dem internationalen Wettbewerb durch die moderne Staatsaufsicht drohenden Nachteile aufmerksam zu machen.

Es wäre vielleicht richtiger gewesen, die Fragen 13 und 14 zum Zwecke einer allgemeinen Behandlung des Aufsichtsgedankens zu vereinigen. Frage 14 bildet unzweifelhaft eine Unterfrage von 13. Immerhin ist sie ein so wichtiger Bestandteil derselben, dass sie eine gesonderte Diskussion verdient, selbst in der engeren Fassung meines Antrages. Nach den Mitteilungen des Organisationskomitees soll der Kongress keine Beschlüsse fassen, die eine bestimmte Meinung ausdrücken. Es muss somit bei der allgemeinen Diskussion des Antrages sein Bewenden haben.

Die Versicherung ist schon längst, vielleicht von jeher, eine internationale Institution, und dieser internationale Charakter ist eben so sehr aus einem Bedürfnis der Versicherer, als der Versicherungsnehmer hervorgegangen. Wir brauchen diesen Entwicklungsgang hier nicht zu verfolgen. Es gibt wohl kein Kulturland mehr, das das wirtschaftliche Gut der Versicherung ausschliesslich aus dem Inlande bezöge.

Es wäre wünschenswert, über den Anteil der ausländischen Unternehmungen am Versicherungsbestande eines jeden Landes Kenntnis zu erhalten. Man möchte vielleicht gerne unser Comité permanent auch mit der Bearbeitung einer solchen internationalen Versicherungsstatistik beauftragen. Leider kennen wir nur in ganz ausnahmsweisen Fällen den Versicherungsbestand der einzelnen Gesellschaften nach Ländern getrennt. Mit der Einführung der Staatsaufsicht wird diese Lücke nach und nach geringer. Der schweizerische Lebensversicherungsbestand z. B. gehörte Ende 1901 zu 42% den einheimischen, zu 58% den ausländischen Versicherungsgesellschaften an. Von den 6 schweizerischen Gesellschaften hinwiederum arbeitet nur ein einziger, dem allgemeinen Publikum nicht zugänglicher Verein ausschliesslich im Inlande. In Österreich operierten Ende 1900 47 Lebensversicherungs-Gesellschaften, davon 20 ausländische, welchen 31% des österreichischen Kapitalversicherungsbestandes angehörten. Der österreichische Bericht über die privaten Versicherungsunternehmungen im Jahre 1900 konstatiert ferner, dass das Versicherungsgeschäft der Inländer im Auslande wesentlich grösser ist, als das Versicherungsgeschäft der Ausländer im Inlande.

In Deutschland arbeiten neben 45 inländischen 35, in England neben 98 9, in Canada neben 19 canadischen 17, in Schweden neben 18 21, in Russland neben 8 inländischen 3 auswärtige Gesellschaften. Auch in Italien dominieren bekanntlich die auswärtigen Gesellschaften bei weitem. Von den 45 deutschen Gesellschaften arbeiten 23 auch im Auslande, und zwar in nicht weniger als 12 Staaten. Über die wechselseitige Bedeutung dieser deutschen Auslandsgeschäfte dürfte man zu ähnlichen Schlüssen gelangen wie bei Österreich.

Ein genauer Nachweis über die wechselseitige Verbreitung der Gesellschaften in den verschiedenen Ländern ist, wie gesagt, zur Zeit nicht möglich. Eine bedeutende Zahl britischer und amerikanischer Gesellschaften hat ihre Risiken in allen Weltteilen.

Trotz dieser intensiven Entwickelung der Versicherungsindustrie sind wir noch weit davon entfernt, die Bedürfnisfrage als berechtigt zu erklären, und erblicken im Wettbewerbe einer grossen Zahl solider Gesellschaften immer noch das beste Mittel zur Verbreitung der Versicherung. Die kleine Schweiz, das Arbeitsgebiet von 6 einheimischen und 21 fremden Lebensversicherungs-Gesellschaften, hat diesem heissen internationalen Wettkampfe eine hoch entwickelte und gegliederte Versicherung zu verdanken. Sie würde niemals daran denken, an diesem Zustande zu rütteln, vorausgesetzt, dass sie nicht durch äussere Umstände wider Willen zu einer Änderung gezwungen wird.

Versicherungsgesellschaften, die in mehreren Staaten arbeiten, haben sich der Gesetzgebung derselben zu unterwerfen. Solange die bezüglichen Vorschriften lediglich formeller Natur waren oder ausschliesslich die Prüfung der Vertrauenswürdigkeit zum Zwecke hatten, konnte ihre Befolgung ohne grössere Schwierigkeit geschehen. Im Laufe der verflossenen 2 Jahrzehnte hat indessen der Gedanke der aktiven, durch ständige Behörden ausgeübten Staatsaufsicht auf dem Kontinente bedeutende Fortschritte gemacht. Wir sind mit einer Reihe einlässlicher Aufsichtsgesetze oder bezüglichen Entwürfen bekannt geworden, deren

Grundzüge zum Teil auch in unseren Kongressberichten niedergelegt sind. Es ist hier nicht der Ort, auf dieselben einzutreten. Es interessieren uns an dieser Stelle nur gewisse Bestimmungen über die auswärtigen Gesellschaften, auf die wir übrigens im Referate des Bulletins bereits hingewiesen haben, im Anschlusse an die Arbeiten der Herren Harding, Adan und Le Jeune in den beiden ersten Kongressberichten. Es ist allgemein bekannt, dass die modernen Aufsichtsgesetze neben leicht erfüllbaren Formalitäten Bestimmungen führen, welche in die Organisation und in den Betrieb der Unternehmungen tief und tiefer eingreifen. Inländischen Anstalten wird die Anpassung nicht allzu schwer fallen. Wenn aber ausländische Gesellschaften sich in ihren Statuten, technischen Grundlagen, in den allgemeinen Versicherungsbedingungen, in den Rechenschaftsberichten etc. einer Vielheit von divergierenden Gesetzen anzupassen haben, so stehen sie in manchen Fällen vor einer unlösbaren Aufgabe. Der eine Staat nimmt diese Sterbetafel und diesen Zinsfuss zum Maszstab seines Urteils, der andere eine andere Tafel und einen anderen Zinsfuss. Der eine Staat begünstigt die Gewinnansammlung, der andere Staat sucht sie zu beschränken, ein dritter gestattet vielleicht nur die jährliche Verteilung. Aber nicht nur in Bezug auf die allgemeinen Bestimmungen — welche alle Unternehmungen treffen, deren Erfüllung aber den ausländischen besonders schwer fallen muss —, sondern namentlich gegenüber den ausländischen Gesellschaften bekunden unsere modernen Aufsichtsgesetze eine zunehmende Strenge. Während das schweizerische Gesetz, auf das wir am Schlusse noch zurückkommen, die Ära der aktiven Aufsicht mit dem Grundsatze der absoluten Gleichbehandlung in- und ausländischer Gesellschaften inaugurierte, treffen wir im österreichischen Gesetze von 1896 die Forderung von Sonderrechnung und Sonderbilanz für den inländischen Versicherungsbestand, neben der Gesamtrechnung. Eine Kaution, beziehungsweise eine Erhöhung derselben, „kann nach Massgabe der Umstände und Zeitverhältnisse bei Beginn des Geschäftsbetriebes oder während desselben ... gefordert werden“ (§ 17 der Verordnung vom 5. März 1896).

Einen weiteren Schritt auf dem Wege der ungleichen Behandlung bedeutet der Erlass des deutschen Gesetzes von 1901, das neben der Sonderrechnung auch das Depositum der Prämienreserve verlangt. Die Prämienreserve der im Inlande abgeschlossenen Versicherungen muss als Kaution in der Weise hinterlegt werden, dass nur mit Genehmigung der Aufsichtsbehörde darüber verfügt werden kann. Dieser Kaution dürfen nur die zur Erfüllung der versicherten Leistung erforderlichen Beträge entnommen werden, und es steht den inländischen Versicherten ein Vorzugsrecht auf diese Prämienreserve im Konkursfalle zu. (Vergl. die §§ 90 resp. 61 des Gesetzes.) Am weitesten aber in der bezeichneten Richtung geht der neueste französische Entwurf vom Dezember 1902, welcher nicht nur das mathematische Deckungskapital, sondern gleich das ganze Aktivum der in Frankreich abgeschlossenen Versicherungen in Beschlag nehmen will. Hier bleibt augenscheinlich von der Privatversicherung nicht mehr viel übrig.

Art. 7, §§ 3 und 4 dieses Entwurfes verfügen nämlich:

« Jusqu'à concurrence du montant des réserves mathématiques et de la réserve de garantie des opérations réalisées en France ou en Algérie à partir de la promulgation de la présente loi ainsi que du montant des comptes (annuels de répartition des bénéfices pour chaque groupe de polices similaires souscrites en France ou en Algérie) spécifiés à l'alinéa précédent, l'actif des entreprises françaises est affecté par privilège au réglement des dites opérations.

« Pour les entreprises étrangères, les valeurs représentant la portion d'actif correspondante, doivent faire l'objet d'un dépôt dans les conditions prévues à l'article 9. Le seul fait de ce dépôt confère aux intéressés, sur les dites valeurs, un droit de gage dans les termes de l'article 2073 du code civil.»

Gerade weil wir es begrüssen, wenn der Gedanke einer effektiven Aufsicht des Staates Fortschritte macht, weil wir glauben, dass diese Aufsicht das Versicherungswesen fördere und diese Anschauung auf die Erfahrung der Schweiz stützen können, möchten wir davor warnen, mit gesetzgeberischen Eingriffen zu weit zu gehen.

Man mag ohne weiteres zugeben, dass die Beaufsichtigung der fremden Gesellschaften Schwierigkeiten bietet, die bei den einheimischen wegfallen, und dass die Deponierung der Aktiven diese Schwierigkeiten auf recht einfache Weise zu beseitigen scheint, indem sie gewissermassen diese fremden Unternehmungen in einheimische umwandelt.

Allein damit missachtet der Gesetzgeber die hervorragende Internationalität des Versicherungswesens und zieht sich den Vorwurf des Technikers zu, er durchbreche die Einheit der Versicherungsgemeinschaft und stelle die Gleichbehandlung der Versicherten in Frage; das heisst, er verstosse gegen zwei grundlegende Forderungen der Technik. Diese inländische Sondergemeinschaft geniesst von Gesetzeswegen besondere Sicherheiten und Vorzugsrechte (im Konkursfalle) gegenüber den übrigen Versicherten derselben Gesellschaft. Ihre Aktiven sind zum grössten Teil oder ganz der Verfügung der Geschäftsleitung entzogen, und es wird den Versicherten im Konkurs — und wohl auch im Sanierungsfalle — dieses Aktivum ungeschmälert zufallen, während die übrigen Mitglieder sich mit dem Reste begnügen müssen, obschon ihre Einlagen nicht geringer waren und auf denselben technischen Voraussetzungen beruhten. Das Prinzip der Solidarität innerhalb derselben Gefahrsgemeinschaft wird — vorwiegend zum Zwecke der leichteren Aufsicht — durch die Einführung solcher Sondergemeinschaften gestört. Denn es wird diesen übrigen Mitgliedern zugemutet, mit ihren Geldern für das Gesamtgeschäft zu haften, während diese Haftung bei den inländischen Mitgliedern durch gesetzliches Privilegium aufgehoben wird. Im Bestreben, die Gefahrsgemeinschaften auszudehnen, durch eine breite, einheitliche Grundlage den Betrieb vor gefährlichen Schwankungen zu schützen, im Bestreben, ihr Arbeitsfeld über die heimatlichen Grenzen hinaus zu erweitern, stossen die Gesellschaften auf immer höhere Schranken. Und doch ist die Notwendigkeit der Aufsichtsgesetze nicht zum mindesten damit begründet worden, dass sie der Versicherung die unumgänglich notwendige breite Grundlage einräumen helfen.

Wenn die Versicherungstechnik die Einheit der Gefahrsgemeinschaft und die Gleichbehandlung der Versicherten innerhalb derselben fordert, so darf die Gesetzgebung sich nicht darüber hinwegsetzen. Technik und Aufsicht verfolgen ja das gleiche Ziel, die Erhaltung und Förderung eines soliden Versicherungsbetriebes. Die Festigkeit, mit der die Aufsicht ihre Forderungen geltend machen kann, beruht hauptsächlich auf ihrem Wegleiter, der Versicherungswissenschaft. Beruht aber die Sicherheit des internationalen Betriebes auf einem technischen Gesetze, so sollte auch die Aufsicht demselben vor anderen Erwägungen den Vorrang lassen. Bei einer ernsthaft geführten Kontrolle erscheint die Möglichkeit eines Konkurses — vorab bei älteren Anstalten — denn doch als so fernliegend, dass sie eine ständige Erschwerung des Geschäftsbetriebes nicht rechtfertigt. Auch aus der Erfahrung ist die Notwendigkeit einer so weitgehenden Sicherung nicht zu begründen. Man

mag einwenden, dass erst durch das Vorzugsrecht auf das Deckungskapital die Gleichstellung hinsichtlich der Sicherheit mit den Versicherten der einheimischen Gesellschaften vorhanden sei, denen ebendasselbe Vorzugsrecht auf die Prämienreserve zukomme. Allein abgesehen davon, dass bei einer reinen Lebensversicherungs-Gesellschaft (nur diese ist in Frage; es ist wohl ein allgemein anerkannter Grundsatz, dass die Garantiemittel der Personenversicherung mit denjenigen der Sachversicherung nicht verschmolzen werden dürfen) der Versicherer wohl kaum andere Gläubiger hat, als die Versicherten, geht dieser Einwand fehl, da in Bezug auf die Garantiemittel zwischen den Versicherten der verschiedenen Gesellschaften überhaupt eine Gleichstellung nicht möglich ist. Die Anstalten bieten ihren Versicherungsnehmern von Haus aus sehr verschiedengeartete Garantien. Und wer sich bei einer ausländischen Gesellschaft versichert, tut dies vielleicht gerade im Hinblick auf Leistungen und Sicherheiten, die er bei einheimischen nicht zu finden glaubt.

Wenn nun solche Personen eine ausländische Anstalt darum bevorzugen, weil sie ihnen z. B. die Kriegsversicherung, eine wertvolle Errungenschaft der Assoziation, unter günstigeren Bedingungen und mit mehr Garantien bieten kann, als die auf ihren Heimatstaat beschränkten Gesellschaften, so sollte ihnen diese Gewähr durch gesetzliche Einschränkung der Verfügbarkeit über die zu dienenden Hülfsmittel nicht entzogen werden. Die Kriegsversicherung verlangt eine sehr breite, internationale Grundlage, eine Verteilung der Gefahr über mehrere Staaten. Jedenfalls müssen Gesellschaften, deren Wirkungskreis nicht über die Landesgrenze hinausgreift, dies Risiko mehr fürchten und ihm ungleich reichlichere Mittel entgegenhalten, als internationale — sofern eben für letztere die Möglichkeit des Gefahrenausgleichs noch vorhanden ist. Was hülfe da die Vorschrift, auch die Kriegsreserve gesondert anzulegen und zu deponieren? Hier liegt gewiss die Sicherheit nicht in der Reservierung als Kaution, sondern in der freien Verfügbarkeit der zu dienenden Mittel begründet. Einen ähnlichen Fehler begeht, wer die Trennung und Deponierung der Gewinnreserven nach Ländern von Gesetzeswegen verlangen möchte.

Da die ausländischen Gesellschaften sowohl in Österreich als auch in Deutschland — der französische Entwurf überlässt die Frage späteren Dekreten — über den inländischen Versicherungsbestand einen besonderen Rechenschaftsbericht neben der Abrechnung über das Gesamtgeschäft ablegen müssen,* so entsteht die Frage, ob und welche rechtliche und materielle Bedeutung diese Sonderrechnung für die inländischen Policeinhaber haben soll. Frühere Referenten haben bereits auf den geringen Wert dieser Sonderrechnungen hingewiesen. Man wird wohl annehmen dürfen, sie seien ausschliesslich für statistische Zwecke bestimmt, ohne dass ihnen eine materielle Bedeutung gegenüber den inländischen Versicherten zukomme. Die Rechnungsergebnisse des Inlandsgeschäfts können für die betreffenden Versicherten selbstverständlich nicht massgebend sein, weil sonst auch die Ergebnisse des Gesamtgeschäftes umgestossen würden. Auch dürfte unter den Versicherten die Kenntnis der Sonderrechnung zu Verwirrung und Unzufriedenheit führen.

Die Folgen dieser ungleichen Behandlung in- und ausländischer Unternehmungen werden freilich erst dann so recht hervortreten, wenn einerseits die Auslandsgeschäfte derselben relativ bedeutend geworden und wenn anderseits auch die Aufsichtsgesetze der einzelnen Staaten gegenseitig auf einander einwirken. Bei dem heutigen Stande des inter-

*Diese Vorschrift ist von Deutschland inzwischen wieder zurückgezogen worden.

nationalen Versicherungsverkehres kann eben ein Staat seine heimatlichen Unternehmungen auf die Dauer nicht schützen, ohne zugleich die ausländischen Interessen derselben zu gefährden.

Und selbst für die Aufsichtsbehörde dürfte der moralische Effekt der hohen Sicherung durch Realkautionen Gefahren bieten, indem sie sich hinter denselben, gewissermassen wie eine Armee hinter ihren Festungen, allzu sicher fühlt.

Unternehmungen, welche sich diesem Zwange nicht unterwerfen wollen oder können, sind daher mehr und mehr genötigt, ihr Geschäftsgebiet auf das Heimatland einzuschränken, und dort werden sie im Interesse ihrer Selbsterhaltung dafür sorgen, dass ihnen wenigstens in der Heimat fremder Wettbewerb nicht entgegentritt. Wenn aber die Gesetzgebung sich dahin entwickeln sollte, dass sie die allmähliche Nationalisierung des Versicherungswesens zur Folge hätte, so müssten wir das umso mehr bedauern, als wir im übrigen von dem günstigen Einfluss dieser Gesetze auf die Entwickelung des Versicherungswesens überzeugt sind. Es darf ferner angenommen werden, dass solche Gesellschaften, die in ihrer Heimat einer effektiven Aufsicht unterliegen, dem Auslande auch mehr Gewähr für die strikte Erfüllung ihrer Verpflichtungen bieten, als diejenigen, die dieses Requisit nicht besitzen. Wir meinen daher, es sollte diesem Umstande durch gegenseitige Vereinbarung zwischen den betreffenden Staaten Rechnung getragen werden in dem Sinne, dass die Gleichbehandlung mit den einheimischen Gesellschaften gewährleistet wird. Über die Form und Zweckmässigkeit der Staatsaufsicht werden die Meinungen wohl immer geteilte bleiben. Auch in dieser Frage spielen die traditionellen Gewohnheiten und Anschauungen der einzelnen Länder zu sehr mit. Das Prinzip der Gleichbehandlung kann aber unseres Erachtens, auch trotz diesen Unterschieden der Aufsichtsgesetzgebung, bestehen. Die gegenseitige Gleichbehandlung würde nicht nur den Versicherungsbetrieb bedeutend erleichtern, sondern auch dem Gedanken der aktiven Staatsaufsicht im hohen Grade Vorschub leisten.

Als die Schweiz im Jahre 1885 die Staatsaufsicht einführte, hatte sie sich über ihre Stellung zu den auswärtigen Gesellschaften zu entscheiden. Es geschah, wie schon erwähnt, im Sinne der absoluten Gleichbehandlung mit den einheimischen Gesellschaften. Die Grundzüge des Gesetzes vom 25. Juni 1885 sind schon in früheren Kongressberichten mitgeteilt worden, und es wird auch an anderer Stelle dieses Berichtes das Gesetz ausführlicher behandelt.* Es ist hauptsächlich ein Informationsgesetz. Die Ausübung der Aufsicht selbst ist grösstenteils in die diskretionäre Befugnis der Behörde gelegt.

Über die Behandlung der ausländischen Gesellschaften, hauptsächlich in Bezug auf die Kaution, herrschten anfänglich Zweifel. Der erste Gesetzesentwurf verlangte von ihnen nur den Nachweis der juristischen Person, die Bezeichnung eines Rechtsdomizils, sowie eines Generalbevollmächtigten; das heisst: Ausweise, denen, im Grunde genommen, auch die inländischen Anstalten genügen müssen. An die Erwägung, dass auch die Erfüllung dieser Requisite nicht dieselbe Sicherheit gewährt, welche die inländischen Gesellschaften darbieten, schliesst nun die Kautionsfrage an. Die Botschaft des Bundesrates vom Januar 1885 sagt: „Hiebei kann die Frage aufgeworfen werden, ob nicht vielleicht ein teilweiser Ersatz in dem Verlangen einer Kautionsleistung gefunden werden könnte. Wir haben aber geglaubt, auch hievon absehen zu sollen. Vor-

* Vergl. das Referat des Hrn. Rosselet zu Frage 13.

erst wäre es zweifelhaft, ob eine solche ungleiche Behandlung der inländischen und ausländischen Gesellschaften überhaupt zulässig wäre gegenüber solchen Staaten, mit welchen die Schweiz Niederlassungsverträge abgeschlossen hat, in welchen die Gleichstellung der gegenseitigen Angehörigen in der Ausübung von Gewerben aller Art festgestellt ist. Allein auch abgesehen hievon wäre eine solche Kautionsauflage kaum von gewünschtem Nutzen. Soll nämlich die Kaution wirklich praktische Bedeutung haben, so darf sie nicht klein bemessen werden. Wollte man sie aber auch nur entfernt dem Betrage gleichstellen, welcher allen aus den Versicherungsverträgen erwachsenden Ansprüchen gleichkäme, so käme man auf Summen, welche die wenigsten Gesellschaften leisten könnten oder würden. Begnügt man sich aber mit kleinen Summen, so bietet die Kaution keine nennenswerte Garantie; wohl aber würde sie sehr oft von den Gesellschaften als Reklame benützt, um das Publikum durch diese in Wirklichkeit ziemlich bedeutungslose Sicherheit heranzuziehen."

Der zweite Entwurf ist von dieser Anschauung nur insofern abgewichen, als er sich zur Notwendigkeit einer relativ geringfügigen Administrativkaution bekannte. Aber sie wird unterschiedslos von allen konzessionierten Gesellschaften eingehoben. Man hatte sich nicht auf den Standpunkt: Alles oder Nichts! drängen lassen. Wenn auch von ihr nicht volle Sicherstellung gegen die Gefahren eines ungeordneten Geschäftsbetriebes erwartet werden kann, so konnte sie wenigstens teilweise zum Schutze gefährdeter Interessen dienen. Diese Kaution für Lebensversicherungs-Gesellschaften, auf 100,000 Franken normiert, hat somit nicht den Zweck, den Versicherten im Falle des Konkurses sicherzustellen, sie ist vielmehr für die öffentlich rechtlichen Interessen der Aufsicht da.*

Der Bericht des eidgenössischen Versicherungsamtes über das Jahr 1890 schrieb zur Rechtfertigung dieser Administrativkaution: „Die von der Schweiz verlangten bescheidenen Kautionen werden daher nicht von den Einwendungen betroffen, welche gegenüber den gegenwärtig in verschiedenen Staaten eingeführten oder in Aussicht genommenen Kautionsforderungen gemacht werden; unsere Kautionen werden gegenüber ausländischen und inländischen Gesellschaften gleich bemessen und sind kein Hindernis fremder Konkurrenz; sie schaffen den bei fremden Gesellschaften versicherten Schweizern nicht Vorrechte auf Kosten der bei denselben versicherten Angehörigen fremder Staaten; sie sind nicht dazu eingeführt, um uns die Aufsicht zu ersparen, sondern ein Mittel zur Durchführung derselben; sie können in diesem Masze, wie wir sie fordern, von allen Staaten, in welchen eine Gesellschaft Geschäfte betreibt, erhoben werden, ohne eine rationelle Geschäftsführung zu beeinträchtigen."

Übereinstimmend mit dieser Anschauung lehnt der neue schweizerische Entwurf über den Versicherungsvertrag es ab, im Konkurse des Versicherers ein Vorzugsrecht des Versicherungsnehmers auf die auf seine Versicherung entfallenden Reserven zu schaffen. Konkursprivilegien seien nur ausnahmsweise am Platze, da nämlich, wo zwingende wirtschaftliche Gründe eine besondere ökonomische Auseinandersetzung der Konkursgläubiger fordern, eine Voraussetzung, die hier, wo der Versicherer regelmässig keine anderen Gläubiger als die Versicherten habe, nicht zutreffe.

Dass auch die Kodifikation des Privatversicherungsvertrages für das

* Der neue dänische, sowie der schwedische Gesetzesentwurf löst die Kautionsfrage im gleichen Sinne wie das schweizerische Gesetz.

internationale Geschäft zu recht erheblichen Schwierigkeiten führen wird, ist leicht einzusehen. Die Diskussion derselben mag späteren Kongressen vorbehalten bleiben.

Wir gelangen auf Grund dieser Ausführungen zu folgenden Schlüssen:

1) Eine internationale Vereinbarung über die Behandlung der ausländischen Gesellschaften seitens der Staatsaufsicht liegt im Interesse des Versicherungswesens und der Gesetzgebung.

2) Vom versicherungstechnischen Standpunkte aus wird die Wahrung der Einheit der Gefahrsgemeinschaft und die Gleichbehandlung der Versicherten verlangt.

ABSTRACT.

ON THE TECHNICAL PRINCIPLES WHICH SHOULD BE OBSERVED IN STATE SUPERVISION.

By F. Trefzer.

It is a happy thought that the Committee on Organization of the Fourth Congress has also taken up the question of the relation of supervision by the Government to the internationality of insurance matters. Question 14, taken to the letter, deals only with technical principles to be considered in connection with supervision by the Government. As, however, a motion of the Third Congress is referred to, only such principles are here involved which are to be observed regarding the supervision of the Government with respect to the internationality of private insurance, and along this line the author takes up the question.

The internationality of private insurance is a fact, to which the supervision must do justice, no matter in which form this supervision may be conducted. Exact statistical data as to the mutual extension of domestic and foreign insurance in each country—the industrial balance—are yet missing; but there are numerous insurance companies in existence doing business in more than one country, and which, therefore, have to adapt their organization to several legislations. In the last two decades there has been a progressing tendency to submit private insurance to a thorough control, and particularly to an active supervision by the Government. There is danger that, in the endeavor to have a control as detailed as possible, no reasonable limit will be made. The more the regulations regarding the statutes, insurance conditions, technical principles and accounting are extended, the more difficult it will be for insurance companies to adapt themselves to them, and finally become impossible. It is also very probable that the supervising authorities often differ in opinion, and that in this way trouble may arise.

There are two ways to avoid this, either by making the field of private insurance a national one, or by coming to an international agreement. But it would be a calamity if legislation regulating supervision would lead to the above-mentioned nationalization.

Without considering these rather secondary difficulties, the report deals especially with the different treatment of foreign and of domestic companies, as it is indicated in several laws. For instance, security is required amounting to the total of the mathematical reserves (Germany), or even amounting to the entire domestic assets (French Project), also presenting a special account regarding domestic business (Austria, Germany, French). By such regulations the partial or entire separation of the insurance society will be effected; the broad association of risk, which has been aspired to in the international business, will be made impossible, unequal rights between the insured of the same Company will be established. The interest of supervision, as enacted in deposits, in divisions, in special rights for groups of insured will be placed above the technical principles —broad agglomeration of equal risks and equal treatment of all insured. An extension of such principles over several States would render international insurance impossible.

The question of bankruptcy does not give sufficient reasons for such difficulties. Insurance against war risk.

Further, the author shows in which way the Swiss legislator and the Swiss method of supervision have met these questions.

Conclusion: An international agreement regarding the treatment of foreign Companies by a supervision of government is to the interest of insurance and of the contemplated control. From the technical standpoint the unity of the association of risks and equal treatment of the insured are required.

RÉSUMÉ.

PRINCIPES TECHNIQUES À SUIVRE DANS L'EXERCICE DU CONTRÔLE DE L'ETAT.

Par F. Trefzer.

C'est une heureuse pensée du Comité d'Organisation du Quatrième Congrès d'avoir soulevé la question de la relation qui existe entre la surveillance gouvernementale et l'internationalisme des matières d'assurance. La question 14 prise textuellement ne traite que des principes techniques qui sont à considérer au point de vue de la surveillance gouvernementale. Comme, cependant, une motion du troisième congrès se trouve rappelée, cette question 14 doit traiter plustôt sur les principes à observer par la surveillance gouvernementale au point de vue de l'internationalisme de l'assurance privée. C'est dans ce sens que l'auteur aborde la question.

L'internationalisme de l'assurance privée est un fait acquis que la surveillance doit respecter quelle que soit la forme qu'on vent donne à cette dernière. Il n'existe que tres peu de données statistiques exactes sur l'extension des compagnies indigènes et étrangères d'un pays, soit sur le bilan industriel—mais il y a en existence un nombre considérable de Compagnies d'assurances qui font des affaires dans plus qu'un seul pays et qui ont, par conséquent, à adapter leur organisation à des législations différentes. Durant ces vingt dernières années l'idée a progressé de soumettre les compagnies à un contrôle plus complet et surtout à une surveillance active du Gouvernement. Le danger existe qu'en essayant d'avoir un contrôle aussi détaille et severe que possible, on ne s'arrête pas à une limite raisonnable. Plus on étend les règlements concernant les statuts, les conditions d'assurance, les principes techniques et la comptabilité, plus il devient difficile aux compagnies d'assurance de s'y adapter et celà finira par leur devenir impossible. Il faut s'attendre aussi à ce que les diverses autorités de surveillance diffèrent d'opinion, ce qui deviendra une cause d'embarras.

On peut éviter ces inconvénients, cependant, en rendant national le champ d'action des assurances, ou en arrivant à un arrangement international. Toutefois ce serait malheur un si la législation moderne de surveillance conduirait à cette alternative de nationalisation.

En plus de ces difficultés d'une importance plutôt secondaire, le rapport traite surtout des différences de traitement accordé aux compagnies indigènes vis à vis des compagnies étrangères, exemplifiées par différentes lois. Ainsi par exemple on requiert un cautionnement qui se monte au total des réserves mathématiques (en Allemagne) ou même au total entier de l'actif indigène (projet français) ; on requiert également une comptabilité spéciale des affaires indigènes (en Autriche, Allemagne et France). De pareils règlements arriveront à effectuer une séparation partielle ou entière de l'organisme des compagnies, à rendre impossible une large risque association auquel on du arrivé vent dans les affaires d'assurances internationales, et enfin à établir des droits inégaux entre les assurés de la même compagnie. Ils placeront les intérêts de la surveillance, manifestés par ces dépôts, ces divisions, cese différentiation des droits au dessus des principes techniques de l'unité du risque, et du traitement égal de tous les assurés. Une extension de pareils principes à plusieurs États rendrait impossible une assurance internationale.

Les questions de faillite ne sont pas des raisons suffisantes pour créer de telles difficultés. Assurance de la risque de guerre.

L'auteur termine en montrant comment le législateur suisse et la pratique suisse de surveillance ont fait face à ces questions.

En conclusion: Un arrangement international concernant le traitement des compagnies étrangères par les autorités de la surveillance serait à la fois dans l'intérêt des compagnies d'assurances et dans l'intérêt du contrôle. Au point de vue de l'actuaire l'unité du risque et le traitement égal des assurés soivent être protégées.

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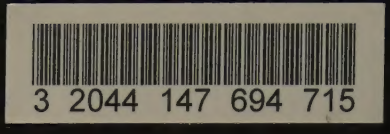
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